CHAPTER 12

RECOMMENDED ENVIRONMENTAL CONDITIONS

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CHAPTER 12

RECOMMENDED ENVIRONMENTAL CONDITIONS

12.1 OVERVIEW

In conducting its environmental review, SEA identified both potential and adverse environmental impacts associated with the Powder River Basin (PRB) Expansion Project, which is the largest and most challenging construction proposal ever before the Surface Transportation Board (the Board). As described earlier, it involves approximately 1,000 miles of rail line, including 280 miles of new rail construction and nearly 600 miles of reconstructed rail line, traverses three states and 56 communities, includes the participation of five cooperating agencies, entails numerous and diverse environmental issues, and involves various alternatives – including consideration of bypass proposals – many of which have their own potentially significant environmental impacts. SEA also analyzed the environmental impacts of constructing and operating new rail yards.

This chapter describes the final mitigation measures SEA recommends that the Board impose as environmental conditions if it approves the proposed PRB Expansion Project. As discussed in the Draft EIS and this Final EIS, the potential environmental effects SEA identified resulting from this project, both beneficial and adverse, could be substantial. DM&E's proposal would afford a means by which DM&E could completely upgrade its existing system, which is currently in poor condition. The complete upgrade of DM&E's existing rail line in Minnesota and the eastern half of South Dakota to allow movement of unit coal trains would enhance the operational efficiency and safety of DM&E's existing rail operations.

Despite this environmental benefit, however, the PRB Expansion Project would have significant environmental consequences, as well. As explained in the Draft EIS and in this Final EIS, the dramatic increase in the number of trains operating on DM&E's existing rail line (from approximately 3 trains each day to a maximum of 37) – and the impact caused by construction and operation of a lengthy new rail line through generally pristine rural areas – would have significant environmental consequences, some of which, such as noise, are difficult to mitigate.

SEA's final environmental mitigation recommendations to the Board — 147 conditions in all — reflect the variety and complexity of the environmental issues and the comments received during the course of SEA's environmental review of a controversial case of this magnitude. The mitigation measures set forth in this chapter include both general and local and site-specific conditions to address the potential adverse environmental impacts related to the PRB Expansion Project, which, based on all information received to date, SEA's independent analysis, and all comments received, SEA has determined would be significant. This project spans three states and would affect rural, farm, ranch, and traditional Tribal lands, as well as communities. Moreover, there is mitigation to address the concerns and responsibilities of the five cooperating agencies. Finally, in some instances (such as Mankato, Minnesota) SEA has crafted mitigation for more

than one alternative route. Because of the unique circumstances involved in the PRB Expansion Project, SEA and the cooperating agencies believe this case warrants more far-reaching and extensive environmental mitigation than the mitigation typically imposed by the Board.

12.2 PRELIMINARY MITIGATION PRESENTED IN THE DRAFT EIS

Following extensive analysis, consultation with Federal, state, and local agencies, numerous site visits, comprehensive public outreach, and careful consideration of comments, both oral and written, received during a thorough scoping process, SEA developed its preliminary recommended mitigation measures, set forth in the Draft EIS in both the Executive Summary and Chapter 7.

In Chapter 7 of the Draft EIS, SEA's Proposed Environmental Mitigation, SEA listed several areas that SEA believed, based on its environmental analysis conducted for the Draft EIS, could result in significant environmental impacts. These areas identified in the Draft EIS included safety, including emergency vehicle access and response and grade crossing safety; transportation, including potential vehicular delay; cultural and archaeological resources; land use; noise; environmental justice; geology and soils; paleontological resources; biological resources, including vegetation and threatened and endangered species; water resources, including wetlands; and visual effects/aesthetics.

The preliminary mitigation presented in the Draft EIS addressed these potentially significant impacts, but SEA noted that not all of the environmental effects associated with this project are mitigatable. For example, horn noise from train operations to residents located close to the rail line would be significant and could not be fully mitigated without compromising safety. And even with mitigation, SEA observed that there would be some vehicle delay at grade crossings, visual impacts on the natural grasslands, and impacts to wetlands and riparian habitat.

Nevertheless, after describing in detail the process by which SEA developed its preliminary mitigation measures, SEA listed 104 measures that it believed were within the Board's power to impose and that were project-related and warranted, based on the potential for significant impact. The preliminary mitigation measures addressed the potential for both short-term construction-related environmental impacts and impacts related to long-term operation of unit coal trains. The preliminary mitigation measures also addressed the potential for material change in the facts or circumstances upon which the Board relied in imposing specific environmental mitigation and the need for DM&E to provide the Board with assurances that it is complying with all the measures imposed by the Board.

SEA explained in the Draft EIS that the preliminary mitigation measures generally applied to both DM&E's new rail line construction and the reconstruction upgrade of DM&E's existing rail line. The preliminary mitigation measures were crafted to apply to the entire project area rather than to specific sites. This is because, based on the information available to date, the potential environmental impacts on communities associated with the PRB Expansion Project seemed to SEA to be largely the same. Unlike the recent railroad mergers considered by the Board, where environmental impacts to communities varied greatly depending which rail line segment the community was located along, each of the affected communities involved in the PRB Expansion Project would experience the same construction-related impacts and number of trains (a maximum of 37 trains per day operating over the rehabilitated rail line), regardless of the individual characteristics of the communities. Only a few of the preliminary mitigation measures set forth in the Draft EIS for the PRB Expansion Project were designed to apply to specific communities, such as Rochester and Mankato, Minnesota.

In the Draft EIS, SEA did not recommend any environmental mitigation specific to community-proposed bypasses. SEA explained that if it identified one or more of the community bypasses in the Final EIS as the environmentally preferable route, SEA would then develop and recommend environmental mitigation applicable to that bypass for the Final EIS, if appropriate. For the reasons discussed in detail earlier in this Final EIS, SEA is not recommending any of the community bypasses and SEA has consequently not crafted mitigation for the community bypasses. Rather, SEA has concentrated on recommending mitigation to reduce potential impacts that could be experienced by those living close to the existing DM&E rail line.

Finally, in the Draft EIS, SEA requested comments on the preliminary environmental mitigation measures presented. SEA also specifically asked that if commenters believed that the unique circumstances of a community warranted individually-tailored environmental mitigation in addition to the environmental mitigation in the Draft EIS, commenters should submit suggestions for environmental mitigation, and why it would be appropriate, to SEA during the public comment period. As discussed below, several commenters suggested site-specific mitigation in their comments to the Draft EIS and SEA has recommended in this Final EIS that some of these measures should be imposed.

12.3 COMMENTS RECEIVED ON THE DRAFT EIS IN RESPONSE TO SEA'S REQUEST FOR ADDITIONAL ENVIRONMENTAL MITIGATION

Throughout its environmental review process and as described in detail in Chapter 11 of the Final EIS, SEA has sought public input. After issuing the Draft EIS, SEA received a broad range of public comments, which included the concerns of Federal, state, and local agencies, elected officials, organizations, businesses, communities, farmers, ranchers, Native American

Tribes, landowners, and residents. In developing reasonable mitigation to address those environmental impacts that would directly result from the PRB Expansion Project, SEA balanced the various perspectives and concerns of the public with the limits of the Board's jurisdiction, the range of environmental impacts and issues, and the needs of the cooperating agencies.

SEA received approximately 8,600 comments on the Draft EIS. Many of the comments requested that the Board impose specific mitigation measures that the commenters believed would minimize project-related impacts. SEA has carefully considered all the comments, and the mitigation suggested in the comments. SEA has recommended the measures that it believes are practicable, designed to mitigate project-related impacts, and within the scope of the Board's conditioning power.

In addition to adding mitigation measures requested, as appropriate, SEA has also modified and clarified based on comments received and SEA's further analysis, the conditions preliminarily recommended in the Draft EIS The more significant changes made to existing conditions are discussed later in this chapter.

12.4 THE BOARD'S DECEMBER 10, 1998 DECISION AND SEA'S FINAL RECOMMENDATIONS

As explained in the Draft EIS and in this Final EIS, in a decision issued on December 10, 1998, the Board found that based on the information available at that time, the new construction and operation proposed by DM&E in its Application satisfied the transportation aspects of 49 U.S.C. 10901.[1] In making this finding, however, the Board explained that the project could not be finally approved until the environmental review process, required under NEPA and related environmental laws, is completed and the Board has the opportunity to assess fully the potential environmental effects and the cost of any environmental mitigation that it might impose on the project. The Board made clear in its decision that it would issue a further decision on the entire

[1] In reviewing rail construction proposals under 49 U.S.C. 10901, the Board examines whether an applicant is financially fit, whether there is a public need for the proposed new service, and whether the project is in the public interest and will not unduly harm existing rail services. In determining that these criteria have been met by DM&E's proposal, the Board assessed the feasibility of the proposed construction project, both financially and otherwise, including projections for increased demand for PRB coal and the capacity to meet that demand.

By enacting the ICC Termination Act of 1995, Congress intended to facilitate rail line construction. Congress did so by changing the statutory standard from requiring approval, if the agency finds that a project is consistent with the public convenience and necessity, to requiring approval unless the agency finds that the project is inconsistent with the public convenience and necessity. The Board noted that "[u]nder the revised statute, proposed rail constructions are to be given the benefit of the doubt." Decision at 17.

proposed project following the completion of the EIS process and that no new construction could begin until a final decision approving the construction is issued and has become effective.

In the Draft EIS, SEA set forth its preliminary mitigation recommendations to the Board and issued these recommendations, along with the entire Draft EIS, for public review and comment. Because the preliminary mitigation measures were subject to modification, SEA did not present cost estimates at that stage in the environmental review process. As directed by the Board, this Final EIS, however, sets forth both SEA's final mitigation recommendations to the Board and an estimate for the total cost of environmental mitigation that may be required by the Board and the five cooperating agencies. This estimate will allow the Board to factor the total cost of environmental mitigation in issuing its final decision on the transportation merits of DM&E's proposal.

12.5 NEGOTIATED AGREEMENTS

SEA stated in the Draft EIS that, as an alternative to the mitigation that the Board would unilaterally impose on DM&E (notwithstanding mitigation required by other Federal regulatory agencies that may have jurisdiction over potentially affected resources), SEA encouraged DM&E to negotiate mutually acceptable agreements with affected communities and other government entities to address potential environmental impacts, including ways to share the costs associated with project-related environmental mitigation measures. Negotiated Agreements could be with neighborhoods, communities, counties, cities, regional coalitions, states, and other entities. SEA explained in the Draft EIS that if DM&E were to submit any negotiated agreements with communities or other entities to the Board, the Board would then require compliance with the terms of any such agreements as environmental conditions in any final decision approving the proposed PRB Expansion Project. These negotiated agreements would supersede any environmental conditions for that particular community or other entity that the Board would otherwise impose.

Recently, in STB Ex Parte No. 582 (Sub-No. 1), Major Rail Consolidation Procedures, the Board discussed the role of negotiated agreements in rail merger cases. The Board explained:

> Generally, the privately negotiated solutions between an applicant railroad and some or all of the communities along particular rail corridors or other appropriate entities are more effective, and in some cases more far-reaching, than any environmental mitigation options the Board could impose unilaterally. Therefore, when such agreements are submitted to it, the Board generally will impose these negotiated agreements as conditions to approved mergers, and these agreements generally will substitute for specific local and site-specific environmental mitigation

for a community that otherwise would be imposed. Moreover, to encourage and give effect to negotiated solutions whenever possible, the opportunity to negotiate agreements will remain available throughout the oversight process to replace local and site-specific environmental mitigation imposed by the agency. The Board will require compliance with the terms of all negotiated agreements submitted to it during oversight by imposing appropriate environmental conditions to replace the local and site-specific mitigation previously imposed.

In April 2001, DM&E submitted 51 negotiated agreements to the Board involving environmental issues. DM&E had negotiated these agreements with 51 of the 56 communities on DM&E's existing rail line. Consistent with the Board's established precedent encouraging privately negotiated solutions and giving effect to negotiated agreements whenever possible, SEA will not interfere with the terms of the agreements agreed upon by DM&E and the relevant community, through its elected representative(s). Therefore, the local and site-specific mitigation measures listed later in this chapter apply only to those communities and other areas without Negotiated Agreements.[2]

In addition to the 51 negotiated agreements with communities, DM&E has also been negotiating agreements with some key Federal agencies, such as the Forest Service, the Bureau of Reclamation, and the National Park Service. These agreements address project-related potential impacts to Thunder Basin National Grasslands in Wyoming, and Buffalo Gap National Grasslands, Angostura Irrigation District, and Badlands National Park in South Dakota.

To ensure implementation of all of the negotiated agreements, SEA recommends that the Board impose an environmental mitigation condition requiring that Applicant (DM&E) comply with the Negotiated Agreements. Moreover, if other Negotiated Agreements are executed and submitted to the Board after publication of this Final EIS, SEA recommends that the Board require DM&E's compliance by imposing an appropriate environmental condition to replace the local mitigation that otherwise would be imposed.

In addition to these formal agreements, DM&E has volunteered to undertake some mitigation measures to address environmental concerns. These mitigation measures relate primarily to grade crossing safety. Recommended conditions requiring DM&E to comply with its proposed grade crossing safety plans (and funding commitments) are set forth in that section below.

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[2] Except as noted in the conditions themselves, all of the general mitigation in this Final EIS would apply.

12.6 REQUESTED CHANGES SEA DID NOT MAKE FOR THE FINAL EIS MITIGATION

In some cases, commenters suggested mitigation to address pre-existing conditions. SEA carefully reviewed all requests for environmental mitigation, but did not recommend mitigation to address pre-existing conditions, for the reasons discussed below.

While the Board has broad authority to impose conditions in actions brought before it, its authority is not limitless. To withstand judicial review, the record must support the imposition of the condition at issue. Moreover, there must be a sufficient nexus between the condition imposed and the transaction before the agency, and the condition must be reasonable. The Board does not have authority to impose mitigation to remedy pre-existing conditions in a particular community that are not a direct result of the action before it – here, the PRB Expansion Project. So for example, one commenter requested that an existing trail underpass should be improved by DM&E to eliminate the existing problem of poor sight lines that trail users experience when crossing under DM&E's existing tracks. Because this condition would remedy an existing situation rather than minimize an impact caused by DM&E's proposal, such a condition would be beyond the Board's authority to require.

Also, many commenters expressed concern about noise impacts should DM&E's proposal go forward. In response, SEA has recommended mitigation for project-related wayside noise in communities that have not entered into Negotiated Agreements with DM&E. Consistent with Board precedent in prior cases, however, SEA will not recommend mitigation designed to address potential noise impacts from train horns because of overriding safety concerns.

Some commenters, including Blue Earth County, Minnesota, which raised concerns about the Mount Kato Ski Resort, requested imposition of conditions requiring DM&E to compensate landowners whose property is directly affected by new rail line construction or rail line rehabilitation. Although the Board has the authority to permit rail line construction under 49 U.S.C. 10901, it does not have authority over, or play a role in, property acquisition or condemnation matters. These issues properly belong to other government entities under other laws. If DM&E were to take property in order to implement this project, it would by law be required to compensate the property owner for the land taken, and for any necessary relocations. Therefore, SEA believes that conditions directed at condemnation, eminent domain, or property valuations are unnecessary here.

The City of Winona, as discussed in the Draft EIS and this Final EIS, is not located on the DM&E line, but would experience down-line impacts if DM&E should interchange traffic with the Canadian Pacific Railroad (CP). The CP rail line goes through Winona. At the urging of the

City of Winona, SEA included an analysis of potential down-line impacts on the City of Winona associated with DM&E's proposal in the Draft EIS. During the comment period on the Draft EIS, commenters from Winona requested that the Board impose conditions on DM&E designed to minimize environmental impacts to the City. However, the potential impacts on Winona that SEA analyzed would be generated by train traffic on the CP rail line, on property owned and operated by CP, not DM&E. SEA cannot recommend mitigation requiring DM&E to take action on property not its own, nor can SEA recommend mitigation imposing requirements on CP, a carrier not before the Board in this proceeding. As a result, the mitigation set forth in this chapter does not include measures for the City of Winona.

12.7 NOTES (BY IMPACT AREA) ON SEA'S FINAL RECOMMENDED MITIGATION MEASURES

12.7.1 GENERAL MITIGATION MEASURES

Safety. Safety is of paramount importance to the Board and SEA believes that its final recommended safety conditions are far-reaching and effective ways to mitigate the potential safety concerns that have been raised in this case, given the limits of the Board's jurisdiction. In the Draft EIS, SEA preliminarily recommended (as Conditions 1 and 2) that the Board require DM&E to develop adequate grade crossing safety plans in consultation with the Federal Railroad Administration (FRA) and State Departments of Transportation to minimize traffic delay and improve vehicular safety at grade crossings on public roads.

Commenters, including the Minnesota Department of Transportation (MN DOT), Blue Earth County, Minnesota, and several communities, raised concerns regarding grade crossing safety. For example, MN DOT suggested that DM&E be required to comply with state guidelines for crossing protection requirements. Olmsted County, Minnesota urged the Board to require DM&E to develop a plan in consultation with appropriate transportation entities for the identification and eventual closure of public roads that have less than 100 cars and trucks per day (100 ADT) with alternative crossings available.

In April 2001, DM&E submitted a Grade Crossing Mitigation Plan (attached as Appendix D) addressing all grade crossings on both the new line that would be constructed and the existing DM&E line that would be rebuilt. In proposing this voluntary mitigation, DM&E states that its purpose is to provide a level of grade crossing protection significantly better than that found on any comparable rail line in the United States.

The Plan presents three levels of grade crossing protection for both the new line and the existing line: (1) the protection that would be determined appropriate under FRA's so-called "PCAPS"[3] methodology, assuming three different levels of train operations (20 million, 50 million, and 100 million tons of coal annually),[4] (2) the level of protection agreed to through negotiations between DM&E and each affected State, developed by applying a formula based on that used by the State of Minnesota[5] to both the new construction and rebuild portion of DM&E's existing line for the same three traffic levels, and (3) the grade crossing protections agreed to as part of the Negotiated Agreements entered into by DM&E and 51 of the 56 communities on the existing line, which are discussed in more detail above.[6] DM&E views the results of the PCAPS analysis as a base line plan. Its submission indicates that application of the State formula would result in more protection for all but eight crossings, and would include certain grade separated crossings on the new rail line that would be constructed. But DM&E only agrees to apply the State formula if it successfully negotiates an agreement with each affected State, which has not yet occurred. The Negotiated Agreements with communities provide the greatest protection.

DM&E states in its Plan that it would fund 90 percent of the cost of the crossing protection upgrades on the existing line in its Plan (which is significantly greater than the railroads' typical contribution). DM&E anticipates that the rest of the necessary funds would come from existing programs, including the Federal Railway-Highway Crossings Program, implemented under the Highway Safety Act of 1973, 49 U.S.C. 203 et al. DM&E states in its Plan that its agreed-to cost allocation would result in significant savings for State and local entities, and should not significantly affect the Federal contributions that would normally be allocated to the line. For grade crossing protections on the new line, DM&E agrees in its Plan to fund 100 percent of the cost.

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[3] Federal Railroad Administration, Personal Computer Accident Prediction System.

[4] SEA applied the PCAPS analysis in the Draft EIS as part of its safety analysis, attaching the results of its analysis at Appendix H.

[5] South Dakota and Wyoming currently do not have published guidelines for development of grade crossing protection.

[6] DM&E provides charts in its Plan identifying all the public grade crossings that are likely to require protection based on the information available to date. DM&E, however, states that the actual implementation of the grade crossing design and protection would be subject to final negotiations and approval by Federal, State and local transportation agencies.

Based on the information DM&E and the other commenters have submitted, SEA has deleted Conditions 1 and 2 of the Draft EIS because DM&E has already conducted the consultations and plan development called for in those conditions and SEA's new recommended grade crossing protection conditions will make the Draft EIS conditions superfluous. SEA's new grade crossing protection conditions (Conditions 1 A and B) generally would require DM&E to comply with the volunteered PCAPS level (because this and would provide improved protection at all but three existing grade crossings SEA determined would potentially experience project-related significant increases in accident frequency and no agreement between DM&E and the affected States currently exist).[7] However, of those three crossings, only one, Broadway Avenue in Rochester, Minnesota, is not within a community with a Negotiated Agreement. SEA has included a site-specific mitigation measure requiring additional grade crossing protection for Broadway Avenue (Condition 123). For those crossings in communities where there is a Negotiated Agreement, SEA's recommended condition specifies that the level of protection in the Negotiated Agreement would apply, so long as implementation of the Negotiated Agreement achieves at least an equivalent level of safety enhancement. SEA's condition would leave to appropriate Federal and State transportation agencies the approval of the final design and other details of the crossings. Implementation of all grade crossing protections would be subject to the review and approval of FRA and the appropriate State Departments of Transportation. Also, in accordance with DM&E's commitment, DM&E would pay 90 percent of the costs associated with these project-related grade crossing protections on the existing line and 100 percent of the costs for the grade crossing protections on the new line. DM&E would have to complete these grade crossing protections prior to moving coal trains at the 20 million, 50 million, or 100 million coal tonnage levels annually, as indicated in the Plan, and would certify to the Board such completion in the quarterly reports required by Condition 147.[8]

Grade Separated Crossings. In the Draft EIS (at Appendix G), SEA described its methodology for analyzing project-related transportation effects of vehicular delays. In the Draft EIS at Appendix H, SEA analyzed project-related potential impacts to highway/rail grade crossing safety. In Appendix H, SEA preliminarily determined that no grade separated crossings were warranted based on the application of the specific formulas that SEA applied.

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[7] If DM&E and one or more of the affected States enters into an agreement for application of the State formula, and the agreement is submitted to the Board, the agreement would supercede Conditions 1A or 1B.

[8] SEA's condition requiring the installation of reflective material on passive warning devices also requires that DM&E certify compliance prior to moving unit coal trains.

SEA received several comments on the Draft EIS arguing that grade separated crossings were warranted, based on the unique circumstances of the particular community. Based on these public comments and SEA's further analysis, SEA is recommending three grade-crossing separations in the Final EIS, one in the City of Pierre, South Dakota, and two (based on tonnage levels of coal moved annually by DM&E) in the City of Rochester, Minnesota. These measures are set forth in the site-specific section below.

Hazardous Material Handling Issues. In the Draft EIS, SEA recommended five conditions addressing hazardous material handling, designed to mitigate project-related impacts during new rail line construction and reconstruction of DM&E's existing line, as well as operation and maintenance of the rail line. DM&E's proposal does not involve the transport of any additional hazardous materials, beyond that which DM&E currently transports on its existing line. However, SEA has included mitigation to address hazardous material handling because project-related construction, reconstruction, and operation of additional trains on DM&E's existing rail line have the potential to affect the safe handling and transport of these materials.

In response to the Draft EIS, some commenters requested mitigation that would require DM&E to establish, train, equip, and maintain emergency response teams capable of responding to accidental spills and coordinating with local emergency response personnel. SEA believes that the six mitigation measures (Conditions 11-16) that SEA recommends the Board impose, afford the same level of protection as that suggested by the commenters, and therefore, it is unnecessary for SEA to recommend additional measures.

SEA is eliminating Condition 6 of the Draft EIS (which required DM&E to fund emergency response training at the national center in Pueblo, Colorado, for representatives of affected communities expressing an interest in such training). SEA did so because DM&E explained in its comments on the Draft EIS that the PRB Expansion Project does not involve transportation of any hazardous materials, and that only DM&E's current operations involve the transportation of some hazardous materials, so that hazardous materials transport is a pre-existing condition.

Finally, in the EIS, SEA presented the general location of hazardous material sites and indicated that if project-related construction or reconstruction activities would affect these sites, then construction workers and the general public could potentially be exposed to hazardous materials. To avoid this, SEA is recommending a new condition (Condition 13), requiring DM&E to coordinate with the Federal Environmental Protection Agency and appropriate State agencies to determine the exact locations of hazardous materials sites and to comply with applicable laws concerning these sites.

Miscellaneous Safety. Some commenters requested mitigation that would require DM&E to grant access to school districts for the purpose of installing equipment permitting the use of in-vehicle warning devices on school buses. Rather than forcing DM&E to provide open access to its right-of-way, which may raise additional safety concerns as well as liability issues, SEA is recommending a condition requiring DM&E to consult and coordinate with school districts that indicate an interest in purchasing this type of equipment.

Also, the Federal Medical Center in Rochester, Minnesota, requested that the Board require DM&E to rehabilitate its existing line to standards suitable for safe and reliable transport of unit coal trains, and to not allow DM&E to move unit coal trains over its existing line until final inspection of the line indicates that rail cars loaded to 286,000 pounds may be safely transported. Because FRA sets safety standards for rail lines and is responsible for safe rail operations throughout the United States, SEA believes that recommending this requested condition is unnecessary.

Transportation. SEA is recommending a new condition that would require DM&E to provide or develop alternative access to fields or pastures in those cases where existing access is eliminated as a result of project-related construction and operation of rail yards. This condition, which was suggested by the Minnesota DOT and supported by Congressman Gutknecht of the First District of Minnesota, is intended to provide for the safe movement of farm equipment by preventing farmers from having to move their equipment on highways and other high speed or high volume roads. SEA is recommending a similar condition for residents in the Shag Road area near New Ulm, Minnesota.

Land Use. Based on comments and its own independent consultations, SEA is modifying Condition 79 from the Draft EIS. In brief, that condition required DM&E to coordinate with the South Dakota Department of Game, Fish and Parks and the Wyoming Game and Fish Department to develop adequate fencing standards and designs to allow for the movement of wildlife, particularly big game, across DM&E's rail right-of-way. In relevant part, the modified condition (Condition 32 in this Final EIS) will now be more specific in the type of wildlife-friendly fencing that DM&E must erect in rural areas and encourage landowners to agree to in areas where antelope are present.

Under the category of residential land use, some commenters, including Blue Earth County, Minnesota, suggested that DM&E be required to relocate all residents displaced by the proposed rail line construction and reconstruction in accordance with other laws. Other commenters suggested that DM&E be required to compensate landowners whose property is directly affected by new rail line construction. As explained above, DM&E will be subject to all existing laws when it acquires property needed for its right-of-way. Any property that DM&E

would acquire for this project must be purchased with the agreement of the landowner or through use of eminent domain, both of which would require DM&E to compensate the landowner. Therefore, SEA is not recommending that conditions related to this issue be imposed by the Board.

SEA is recommending a condition suggested by Blue Earth County, Minnesota, in the agricultural land use category: new Condition 57 requires DM&E to make reasonable efforts to protect existing drainage tile systems present in the agricultural lands adjacent to the rail line right-of-way during project-related construction and reconstruction activities. This condition ensures that if DM&E should damage existing drainage tile systems as a result of project-related activities, then it must repair the damage as quickly as possible.

Water Resources. The U.S. Fish and Wildlife Service (USFWS) requested that the Board impose a condition recommending to the U.S. Army Corps of Engineers (COE) that any Section 404 permit that the COE may grant DM&E under that section of the Clean Water Act should be conditioned to require that DM&E develop a wetlands mitigation plan. DM&E would also be required to submit this plan to the COE, the Minnesota Department of Natural Resources, the Minnesota Board of Water and Soil Resources, and the USFWS for approval. Once the plan is approved, DM&E would be required to implement it prior to or concurrent with the start of any construction or reconstruction activities.

The COE is a cooperating agency in this EIS process because DM&E must obtain Section 404 permits from the COE in addition to being granted authority from the Board before it may construct and operate its new line and, in the case of the COE, reconstruct its existing line. The COE permitting process typically requires applicants to prepare wetlands mitigation plans and involves coordination and consultation with other appropriate Federal and state agencies.

DM&E has submitted Section 404 permit applications to the COE. These applications include conceptual mitigation sites and potential acreage to offset impacts to aquatic resources. Attachment A at the end of this chapter includes general COE guidelines for the mitigation of wetlands and waters of the U.S. It is anticipated that wetlands under the jurisdiction of the COE would be replaced at an average ratio of two new acres of wetlands for each acre affected; isolated wetlands and other waters of the U.S. would be mitigated at a ratio averaging one acre for each acre affected. Because the COE process already involves essentially the same steps that Fish and Wildlife is requesting, SEA believes that an additional condition is unnecessary.

However, conditions requested by Minnesota Department of Natural Resources, concerning designing waterway crossings to allow the passage of fish and minimize impacts to community-designed floodways and prohibiting construction vehicles from driving in or crossing

streams at any point other than designated crossings will be recommended in the Final EIS. These measures appear to be reasonable and project-related, and the issues raised may not be specifically addressed by the COE.

Air Quality. In the Draft EIS, SEA recommended a condition (Condition 68) requiring DM&E to comply with the U.S. Environmental Protection Agency (EPA)emission standards for diesel-electric railroad locomotives when purchasing and rebuilding locomotives for movement of unit coal trains throughout its system. The EPA commented that DM&E, as a small business, would normally be exempt from compliance with these provisions. However, it is within the Board's jurisdiction to condition its grant of construction and operation authority on compliance with standards from which a railroad may ordinarily be exempt. By recommending mitigation requiring DM&E to comply with EPA standards in the Final EIS, SEA is addressing potential impacts to air quality that may result from DM&E's proposal in a reasonable way without undermining the normal applicability of EPA's small business exemption. Additionally, DM&E has stated that it is willing to comply with the EPA standards. Therefore, the condition has been retained as Condition 82.

Also, in the Draft EIS, SEA recommended a condition (Condition 67) requiring DM&E to comply with the final recommendations of the Air Quality Working Group, which was established for this project and consists of agencies, including the National Park Service, with appropriate technical expertise. SEA understands that DM&E and the Working Group have been meeting periodically over the last several months, and that various versions of a draft Memorandum of Agreement have been circulated. The negotiations reached an impasse, however, when the parties could not reach agreement on one issue: train caps or emission caps.

Specifically, DM&E proposed that certain mitigative measures would be taken "in a reasonable time" if pre-determined haulage rates were exceeded. The Working Group wanted DM&E to limit the number of trains or the amount of emissions generated such that emissions would not reach levels that would be high enough to affect Class I airsheds, such as Badlands National Park in South Dakota.[9] DM&E responded that it could not agree to train or emissions caps because to do so would violate its so-called "common carrier obligation" to provide service upon request to the shippers to which it holds out service. See 49 U.S.C. 11101(a).

[9] See Chapter 4 of the Draft EIS for a discussion of the regional haze issue and SEA's conclusions about the tonnage levels at which visual impairment to Class I airsheds would occur.

DM&E's assertions are correct. As the Board has frequently stated, railroads must have the flexibility to adjust the level of train traffic over particular line segments in response to changes in shipper demands and other market conditions.[10] Any caps — whether to trains or emission levels — would be inappropriate, in violation of the railroad's common carrier obligation, and beyond the Board's jurisdiction to impose.[11]

The concerns of the Working Group may also have merit. The National Park Service generally prefers a proactive approach to preventing adverse impacts to Air Quality Related Values in the parks for which it is responsible. According to the National Park Service, allowing a new emission source to create such an adverse impact before mitigation measures are employed would not only jeopardize the resources of its parks, but also set a difficult precedent.

Notwithstanding the impasse, SEA believes that the Working Group has been productive, and is hopeful that a mutually satisfactory agreement may be reached following issuance of this Final EIS clarifying the limits of the Board's jurisdiction.[12] Therefore, SEA is retaining its Working Group condition but modifying it to require mediation (half of which would be funded by DM&E) if the Working Group and DM&E cannot agree on terms within one year of the date of a Board decision giving final approval to the project.[13] (Condition 81 in the Final EIS.)

SEA recognizes, however, that there are technological and other limitations to the mitigation options available to the Working Group to minimize project-related impacts of regional haze. For example, it does not appear feasible to require DM&E to accelerate compliance with EPA's locomotive emissions standards, as the technology needed to retrofit locomotives is not currently available. However, EPA has promulgated regulations which require that locomotives manufactured in 2005 and later meet very stringent Tier 2 emissions standards at the time of

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[10] See Major Rail Consolidation Procedures, STB Ex Parte No. 582 (Sub-No. 1) (STB served June 11, 2001), slip op. at 39-40.

[11] In one railroad merger, the Board imposed a temporary traffic cap in one community (Reno, Nevada) to permit completion of an ongoing environmental mitigation study. No permanent traffic cap has ever been imposed by the Board.

[12] Adverse impacts to Class I airsheds are not anticipated until DM&E were to transport 40 million tons of coal annually. Accordingly, there would be time for the parties to seek to resolve the impasse, assuming that the Board gives final approval to the PRB Expansion Project.

[13] Under SEA's recommended condition, the parties jointly could ask for more time to continue their negotiations without a mediator if they believe that would be more productive. The parties also could mutually decide to disband the Working Group if it becomes clear that further meetings would not be fruitful.

original manufacture or remanufacture. Were DM&E to meet these Tier 2 standards, most of the adverse impacts of the proposed project to Class I airsheds would be alleviated. As stated above, Condition 68 of the Final EIS makes it clear that, even if DM&E is considered a "small business" in the context of the EPA regulation, it must still comply with the regulation as if it were not exempt on that basis. However, the effects of making DM&E subject to the EPA standards would not occur until DM&E purchases locomotives manufactured in 2005 or after, and would have little effect on locomotives manufactured prior to that date. Moreover, DM&E is exploring the possibility of using a special type of fuel to reduce emissions, but is concerned that it could be placed at a competitive disadvantage if other railroads operating in the PRB did not have to operate under the same conditions.

It may be that no good options prove to be available to address the impacts of regional haze in Class I airsheds that would result from the locomotive emissions of DM&E coal trains. In the event that the Working Group cannot agree on reasonable measures to assure that project-related impacts would be effectively mitigated, regional haze could constitute an unavoidable adverse impact to Class I airsheds.

In addition, the State of South Dakota requested imposition of a measure requiring DM&E to comply with any future regulations the State of South Dakota may implement regarding regional haze and allowable locomotives emissions. Because DM&E would have to comply with any applicable laws anyway, SEA believes that it is unnecessary to recommend conditions regarding laws that do not exist now but may exist in the future.

Noise and Vibration. Based on its environmental analysis and the comments received, SEA believes that mitigation to protect against train wayside noise is warranted here, given the projected increased traffic over DM&E's existing line and the magnitude of this project. Consistent with the Board's decision in the Conrail merger proceeding — the only other case where wayside noise mitigation was recommended by SEA — SEA's recommended condition would apply to receptors that fall within the 70 dBA Ldn noise contour for wayside noise in communities without Negotiated Agreements. SEA's condition would require DM&E to design noise mitigation with a goal of a 10 dBA noise reduction and achieve a minimum reduction of 5 dBA.

Some commenters noted that other agencies have implemented different noise mitigation criteria (i.e., 65 dBA instead of 70). However, the use of such criteria is inconsistent with agency practice and would require noise mitigation on so many additional receptors and would be so costly that SEA believes using that standard would place an unreasonable burden on this Applicant.

Condition 95 in the Draft EIS required DM&E to consult with interested communities along its new and existing rail line to identify measures to eliminate the need to sound train horns consistent with FRA standards. The Minnesota DOT objected to this condition, reasoning that such a condition could potentially compromise safety. SEA is retaining this condition (Condition 90 in this Final EIS), however, because the condition would ensure that any elimination of train horns will be consistent with FRA standards, and FRA is charged with regulating all aspects of rail safety.

Condition 96 in the Draft EIS required DM&E to implement a program to minimize vibration resulting from train operations in Rochester, Minnesota where large amounts of vibration-sensitive equipment are present, such as MRI equipment located in the Charlton North building of the Mayo Clinic. After issuing the Draft EIS, SEA continued to gather data on the potential project-related effects of unit coal trains on vibration-sensitive equipment in Rochester. SEA's conclusions regarding vibration in Rochester are set forth in detail in Chapter 9. As discussed there, SEA's additional analysis led to the conclusion that the operation of unit coal trains should not affect sensitive equipment used by the Mayo Clinic. Therefore, SEA is removing this condition. Another condition, however, would require DM&E, prior to initiating project-related construction activities, to develop a plan to minimize construction noise and vibration within the communities along the rail line. Various other noise conditions also are carried over from the Draft EIS.

Biological Resources. In the Draft EIS, SEA preliminarily recommended several conditions designed to mitigate project-related impacts on biological resources. All but one of these conditions have been retained with minor modifications. A number of commenters requested additional conditions aimed at protection of endangered species. However, one of SEA's conditions would require DM&E to comply with the terms in the Biological Assessment (BA) prepared by SEA under Section 7 of the Endangered Species Act, 16 U.S.C. 1531, and the Biological Opinion (BO) prepared by the USFWS for this project, included in Appendix H. Since the requested conditions ask for measures already addressed in the BA and the BO, these conditions are unnecessary.

In addition, SEA is removing Condition 81 of the Draft EIS, which provided that "should project-related construction and operation activities affect previously unidentified threatened or endangered species, Applicant shall immediately cease construction and contact the USFWS for guidance on how to protect these species." The BA and the BO will afford sufficient protection for species considered Federally-threatened or endangered, as well as candidate or proposed species. Condition 81, therefore, is not necessary.

One commenter requested a condition that would apply if DM&E were to participate in any land exchanges with Federal or state agencies. Specifically, the Wyoming Department of Game and Fish requested a condition that would require DM&E to consider acquiring lands providing important wildlife habitat, such as big game crucial winter range and elk calving areas. Wyoming Game and Fish also requested conditions that would require DM&E to purchase access through direct land acquisition and/or easements to other currently inaccessible public lands.

Because the BA and BO evaluate potential impacts to species habitat, as well as to species themselves, project-related impacts to important habitat would be mitigated pursuant to the BA and BO. Any land acquisition that DM&E may undertake with other Federal or state agencies would be conditioned by the agency participating in the land exchange with DM&E, and not the Board.

The Minnesota Department of Natural Resources requested a condition requiring DM&E to obtain state permits for the taking of state-listed threatened and endangered species. Although SEA has encouraged DM&E to work cooperatively with state agencies, the Board's responsibility is to comply with the Federal Endangered Species Act and, in consultation with the USFWS, assess a project's potential impact on Federally listed threatened and endangered species. Therefore, SEA will not recommend a condition focused on state species.

Cultural Resources. In the Draft EIS, SEA recommended a condition requiring DM&E to comply with the terms of the Programmatic Agreement (PA), Identification Plan, and Memorandum of Agreement (MOA), all of which are set forth in the Appendices to the Draft EIS. The PA and Identification Plan establish a process under Section 106 of the National Historic Preservation Act for identification and protection of cultural resources potentially affected by DM&E's proposal. The MOA is designed to ensure that concerns of Native American Tribes related to the proposed project which are outside the Section 106 process are considered and addressed by DM&E.

The Standing Rock Sioux Tribe requested a condition requiring DM&E to fully comply with all laws governing discovery and treatment of graves, including the Archaeological Resources Protection Act, Executive Order on Sacred Sites, and the Native Graves Protection and Repatriation Act. Because the terms of the PA require DM&E to comply with these laws and executive orders, SEA believes that it is unnecessary to recommend imposition of a separate condition on DM&E requiring it to do what it must already do under the terms of the PA.

Other commenters, including the Lower Brule Sioux Tribe and Ms. Charmaine White Face, a member of the Oglala Sioux Tribe, made similar requests, seeking conditions requiring that DM&E take measures to protect newly identified archaeological sites within its right-of-way,

ensure that qualified archaeologists are present during new rail line construction in areas with a high potential for cultural resources, and cease construction activities until sites discovered can be inspected by a monitor. Again, because the terms of the PA require DM&E to comply with the laws and executive orders governing the discovery and treatment of graves, SEA believes that it is unnecessary to recommend imposition of a separate condition.

The Lower Brule Sioux Tribe requested that the Board require DM&E to provide a Tribal Liaison, whose duties would be similar to those established for the Community Liaison established in Condition 29. SEA believes that such a liaison would provide a valuable conduit between DM&E and the Tribes, and is adding such a recommendation to its environmental justice section (Condition 110).

12.7.2 SITE-SPECIFIC MITIGATION

Grade Separated Crossings Recommended for Pierre, SD and Rochester, MN. SEA is recommending that the Board require DM&E to construct one grade separated crossing in Pierre, South Dakota, and two grade separated crossings in Rochester, Minnesota, to protect against the significant adverse impacts that will arise from increased train traffic in those communities if this project is approved and implemented.

For Pierre, DM&E must complete the grade separated crossing at Sioux Avenue or other mutually acceptable location within one year after DM&E transports more than 50 million tons of coal through Pierre annually for more than one year. SEA is recommending this mitigation because all unit coal trains associated with the proposed project would pass through Pierre and a grade separated crossing would significantly improve safety, facilitate emergency vehicle access, and minimize traffic disruption and noise for citizens and visitors to the State Capital if the Board approves Alternative P-2, the route through town. While not as far-reaching as the proposed bypass advocated by the community, the grade separation appears to SEA to be feasible and the best available mitigation option, given the problems of the bypass, which are discussed in detail in Chapter 5 of this Final EIS.

To ensure that the appropriate Federal, state, and local agencies are involved in the design, location, and funding of the grade separation, SEA is recommending that the Board require DM&E to consult with the Federal Railroad Administration, appropriate state and local transportation authorities, and the City of Pierre on the design, location and funding of the grade separation. Finally, SEA's condition would specifically require DM&E to apprise SEA of its progress toward implementation of this condition in the quarterly reports that SEA is recommending that DM&E file for the duration of the oversight period.

For Rochester, SEA is recommending that the Board require DM&E to install two grade separated crossings, the first one installed prior to DM&E transporting more than 20 million tons of coal annually through Rochester for more than one year. The second grade separated crossing must be installed prior to DM&E transporting more than 50 million tons of coal annually through Rochester for more than one year. Under SEA's recommended condition, these grade separated crossings would be designed and located to facilitate the movement of emergency vehicles to and from medical facilities providing emergency services in Rochester, including St. Mary's Hospital and Methodist Hospital. Like the condition for Pierre, in Rochester, DM&E must consult with the FRA, appropriate state and local transportation authorities, and the City of Rochester on the design, location, and funding of the grade separation. Similar to the Pierre condition, SEA's condition specifies that DM&E must apprise SEA of its progress toward implementation of this condition in the quarterly reports DM&E will file for the duration of the oversight period.

The Mayo Clinic, Rochester, Minnesota. Mayo Foundation submitted comments related primarily to the potential health-related risks construction and operation of Alternative R-2 would have to the patients of the Mayo Clinic and the community of Rochester. Mayo expressed concerns that it might have to evacuate its inpatient facilities in the event of a hazardous material spill along the rail line. Mayo also expressed concerns regarding the effect vibrations generated from passing coal trains would have on various sensitive medical procedures and activities, including MRI systems, microsurgical procedures, and medical research. Additionally, Mayo stated that it is concerned that the increase in rail traffic will increase the chance that a grade crossing would be blocked during an emergency response to the Mayo Clinic, delaying a patient's arrival for emergency treatment or a physician en route to Mayo to perform after hours emergency medical procedures.

SEA conducted additional investigation as a result of Mayo's comments. The results are set forth in Chapter 9. In sum, SEA did not find that the Mayo Clinic would experience significant project-related noise and vibration impacts because it is located several blocks from the rail line. However, because Mayo Clinic is one of the premiere health care facilities in the world, SEA recommends requiring DM&E's upper management to meet with representatives of the Mayo Clinic to consult and coordinate with Mayo Clinic on how best to minimize project-related impacts on the Clinic. SEA's condition specifically requires Applicant's upper management to continue to meet with Clinic representatives on a regular basis for the duration of the oversight period.

Mankato, MN. As part of its site-specific mitigation, SEA has developed recommended mitigation for both Alternatives M-2 and M-3 in the Mankato, Minnesota, area. SEA did so because the M-3 Alternative, which SEA has identified as the preferred alternative, is not a feasible alternative without an agreement from the Union Pacific Railroad (UP) permitting DM&E

to construct a separate rail line on the UP right-of-way. In the absence of such an agreement from UP, SEA identified the only remaining feasible alternative — the M-2 Alternative — as environmentally preferable. In the event that DM&E and UP enter into an agreement that would make the M-3 alternative feasible, SEA is recommending mitigation specific to the City of Mankato. If such an agreement does not materialize, SEA is recommending mitigation for the M-2 rail line construction south of Mankato, including a requirement that DM&E coordinate with Blue Earth County and appropriate agencies to develop additional grade crossing protection devices at the proposed crossing of Township Road 194.[14] A more detailed discussion of these alternatives and potential impacts in the Mankato area can be found in Chapter 7 of this Final EIS.

Wyoming. SEA developed a number of recommended general mitigation conditions to address the potential impacts of new rail line construction. Additionally, as part of its site-specific mitigation, SEA has developed recommended mitigation including a requirement that DM&E coordinate with Niobrara and Campbell counties (as appropriate) and other appropriate agencies to develop additional grade crossing protection devices at the proposed crossings of U.S. Highway 85, State Highway 450, and Bishop Road.[15]

Monitoring and Enforcement. The Minnesota Department of Natural Resources requested a condition requiring DM&E to have trained and qualified environmental monitors, familiar with the permits and mitigation conditions required for the project, on-site to ensure full compliance with all conditions. These environmental inspectors would have the authority to stop construction and rehabilitation activities, as appropriate, and direct construction contractors to take appropriate corrective action to ensure project compliance with permits and mitigation requirements.

SEA agrees that, given the complexity of this project and its geographic scope, monitoring is appropriate to ensure that SEA and the Board are apprised of DM&E's progress in implementing the environmental mitigation conditions if the PRB Expansion Project is approved. To that end, SEA is recommending that the Board impose an oversight period that would cover the first two years of project-related operations, or any oversight period the Board imposes (Condition 147) and that the Board require DM&E to submit quarterly reports detailing

[14] SEA believes this is necessary because the accident frequency at that location would exceed the Board's criteria of significance even with the protection proposed in DM&E's Grade Crossing Mitigation Plan, which is discussed above.

[15] SEA believes this is necessary because the accident frequency at these locations would exceed the Board's criteria of significance even with the protection proposed in DM&E's Grade Crossing Mitigation Plan.

mitigation compliance.[16] Moreover, SEA is recommending that the Board require DM&E to retain a third-party contractor to assist SEA in the monitoring and enforcement of environmental mitigation. And there is a condition in the Final EIS specifically retaining jurisdiction for the Board to take appropriate action if there is a material change in the facts or circumstances upon which the Board relied in imposing specific environmental conditions.

SEA believes that these conditions provide sufficient oversight of DM&E's environmental compliance, without the burdensome requirement of training qualified on-site environmental monitors to be present at every construction and reconstruction activity over a nearly 1,000 mile project area in three states.

12.8 COST ESTIMATES FOR FINAL RECOMMENDED MITIGATION, INCLUDING MITIGATION ESTIMATES FOR PERMITTING BY COOPERATING AGENCIES

In its December 10, 1998 decision on the transportation merits of the proposed PRB Expansion Project, the Board indicated that it would issue a subsequent decision on the entire proposed project, after completion of the environmental review process, assessing the potential environmental impacts of the project and the cost of environmental mitigation that the Board could impose. Therefore, SEA has estimated the costs that would be associated both with its recommended mitigation measures and compliance with the mitigation that would likely be imposed by the five cooperating agencies.

In assessing SEA's cost estimates, it is necessary to consider the following:

- SEA's estimate does not include the cost of mitigation set forth in the Negotiated Agreements that DM&E and 51 of the 56 communities on the existing line have executed.

- Cost estimates do not include the cost of design and engineering, which are more properly viewed as construction costs, rather than mitigation.

- Some of the items for which SEA estimated costs would likely be included as part of the cost of construction or reconstruction, even if it were not mitigation. For example, SEA has estimated the cost of installing grade crossing warning devices

[16] SEA is recommending this oversight period as part of any project approval by the Board. Other Federal agencies, such as the COE or USFS, could impose their own oversight periods as part of their permitting processes.

at new crossings. Such costs would likely be required as part of normal construction of a new rail line. SEA has, however, included costs for implementation of the Grade Crossing Mitigation Plan submitted by DM&E because it considers such devices as mitigation for potential safety impacts.

- Only estimated mitigation costs for routes SEA is recommending are included. These include the mitigation costs associated with Alternative C, Phiney Flat, WG Divide, Black Thunder North, and North Antelope East, as well as reconstruction of the existing rail line and Mankato Alternative M-2 or M-3 in Mankato and Owatonna Alternative O-4 or O-5.

- Where costs could not be pin-pointed (such as for wetlands, paleontological sites, and noise mitigation), SEA has developed a reasonable range of the potential costs.

- Not all estimated costs would be incurred as part of initial rail line construction. Certain costs (including grade separations, grade crossing warning device upgrades, and noise mitigation) would not occur unless DM&E achieved specified levels of annual unit coal train operations.

- Costs are based on 2001 dollars. It is expected that many of these costs would be greater at the time of installation due to normal, annual increases in cost. However, it is also likely that the original cost of the proposed project, estimated at $1.4 billion, has increased since DM&E filed its Application with the Board in February 1998.

- The Coast Guard, one of the cooperating agencies, has indicated that it has not yet developed mitigation and associated costs on that portion of the proposal over which it has jurisdiction (DM&E's bridge over the Missouri River at Pierre, South Dakota). Therefore, SEA has not included a separate cost estimate for the Coast Guard.

The following summarizes the estimated costs of mitigation, by agency:

STB	- $70.0 to $72.9 million[17]
COE	- $23.2 to $55.7 million
USFS[18]	- $6.4 to $6.8 million
BLM	- $1.4 million
Reclamation	- $2.3 million
Total	- $103.3 to $139.1 million

Information developed by SEA and the cooperating agencies estimating the cost of environmental mitigation is included as attachments (Attachments C through G) at the end of this chapter.

These mitigation costs — likely to exceed $140 million — are substantial. However, this complex and controversial $1.4 billion proposal involves nearly 300 miles of new rail line construction and nearly 600 miles of rail line rehabilitation traversing 56 communities, in three states, and lands managed by three Federal agencies. The likely expenditure of approximately 10 percent of the construction cost for mitigation that could be imposed by the Board and five cooperating agencies is not unreasonable, given the magnitude of the project and the nature of the environmental issues. For large capital projects such as power generation facilities and water supply reservoirs, it is not unusual for mitigation to total 10 to 20 percent of construction costs, and here the anticipated mitigation cost is well within this range.

12.9 RECOMMENDED MITIGATION CONDITIONS

The following sections outline the mitigation measures SEA is recommending the Board impose as part of any authority allowing DM&E to construct and operate the proposed project. These measures include general measures applicable throughout the entire project area (including new rail line construction and rail line rehabilitation), site-specific mitigation measures (applicable to specific locations or communities), and negotiated agreements.

[17] Because DM&E does not currently have agreements with UP for Alternatives M-3 and O-5, these mitigation costs include the estimated mitigation costs associated with Alternatives M-2 and O-4.

[18] Proposed mitigation plan included as Attachment B to this Chapter.

12.9.1 RECOMMENDED GENERAL MITIGATION MEASURES

12.9.1.1 Safety

Grade Crossing/Warning Devices

1A. To address potential safety impacts at highway/rail grade crossings, Applicant, in accordance with its Grade Crossing Mitigation Plan, shall apply its proposed PCAPS-based grade crossing protection formula to the crossings on the existing rail line in South Dakota and Minnesota, for the anticipated tonnage levels of coal to be moved (20 million tons, 50 million tons, or 100 million tons annually).

Applicant shall consult with appropriate Federal and State transportation agencies to determine the final design and other details of the grade crossing protections. Implementation of all grade crossing protections shall be subject to the review and approval of the FRA and the appropriate State Departments of Transportation. As agreed to by Applicant, Applicant shall pay 90 percent of the costs associated with these project-related grade crossing protection upgrades on Applicant's existing line.

This Condition shall not apply to crossings in communities that have executed Negotiated Agreements with Applicant that address the communities' safety concerns. In those cases, the terms of the Negotiated Agreement will apply, so long as implementation of the Negotiated Agreement achieves at least an equivalent level of grade crossing protection. Applicant shall complete these grade crossing protections prior to moving annual tonnage level of coal (20 million tons, 50 million tons, or 100 million tons annually) specified in its plan and shall certify to the Board such completion as part of its quarterly reports required by Condition 147.

1B. To address potential safety impacts at highway/rail grade crossings, Applicant shall apply its proposed PCAPS-based grade crossing protection formula to the crossings on the new rail line in Wyoming, South Dakota, and the Mankato area of Minnesota (assuming that Alternative M-2 is approved and constructed), for the anticipated tonnage levels of coal to be moved (20 million tons, 50 million tons, or 100 million tons annually).

Applicant shall consult with appropriate Federal and State transportation agencies to determine the final design and other details of the grade crossings protections and grade separations on the new rail line. Implementation of all grade crossing protections and separations on the new rail line shall be subject to the review and approval of the FRA and the appropriate State Departments of Transportation. As agreed to by Applicant,

Applicant shall pay 100 percent of the costs associated with these project-related grade crossing protections along the new rail line.

This Condition shall not apply to crossings where communities or other entities have executed Negotiated Agreements with Applicant that address safety concerns. In those cases, the terms of the Negotiated Agreement will apply, so long as implementation of the Negotiated Agreement achieves at least an equivalent level of grade crossing protection. Applicant shall complete these grade crossing protections prior to moving annual tonnage level of coal (20 million tons, 50 million tons, or 100 million tons annually) specified in its plan and shall certify to the Board such completion as part of its quarterly reports required by Condition 147.

2. Applicant shall maintain the new and existing rail line and grade crossing warning devices according to FRA track safety standards (49 CFR Part 213).

Emergency Response

3. At least one month prior to initiation of construction activities in the area, Applicant shall provide the information described below, as well as any additional information, as appropriate, to each local emergency response organization or other similar body for communities within the project area regarding project-related construction and operation of both the new and existing rail line:

   - The schedule for construction throughout the project area, including the sequence of construction and reconstruction of public grade crossings and approximate schedule for these activities at each crossing.

   - Expected schedule for change in rail line operations along Applicant's existing system, including when changes in train speeds and levels of traffic are anticipated to occur, and current and new train speeds and levels of rail traffic.

   - A toll-free number for the Applicant's contact who shall be available to answer questions or attend meetings for the purpose of informing emergency service providers about the project construction and operation.

   - Revisions to this information, including changes in construction schedule, as appropriate.

4. Applicant shall consult with the communities of Rochester, Owatonna, and Mankato, Minnesota, and Brookings and Pierre, South Dakota, and any other affected communities that so request, to coordinate train movements and emergency response and discuss the possible installation by the Applicant of a state-of-the-art electronic display board, or equivalent technology, such as a real time or Global Positioning System (GPS) train location monitoring system in the local emergency response center of each community showing the location of trains and/or the position of grade crossing warning signals.

5. Applicant shall coordinate with the appropriate state Departments of Transportation, counties, and affected communities to develop a program for installation of temporary notification signs or message boards on railroad property at public grade crossings, determined by the State and/or County to warrant such measures, clearly advising motorists of the impending increase in train traffic and train speeds along its existing system and commencement of operations along its new rail line. The format and lettering of these signs shall comply with the U.S. Department of Transportation (DOT), Federal Highway Administration's Manual on Uniform Traffic Control Devices, and shall be in place no less than 30 days before, and 6 months after, completion of project-related construction and reconstruction activities in the area. As an alternative, Applicant shall coordinate with the state Departments of Transportation to develop a mutually satisfactory media campaign to be conducted by Applicant throughout the counties and communities surrounding the rail line providing information and notice to the public of project-related changes along its existing system and commencement of operations along its new rail line. This campaign shall include the use of different media (radio, television, newspaper, public meetings, etc.) and may include such things as public service announcements, advertisements, or legal notices. Prior to moving coal trains to and from the PRB, Applicant shall certify to the Board that it has complied with this condition as part of its quarterly reports required by Condition 147.

6. For each of the public grade crossings on the new and existing rail line, Applicant shall provide and maintain permanent signs prominently displaying both a toll-free telephone number and a unique grade crossing identification number in compliance with Federal Highway Regulations (23 CFR Part 655). The toll-free number shall be answered 24 hours per day by Applicant's personnel. Where Applicant's right-of-way is close to another rail carrier's crossing, Applicant shall coordinate with the other rail carrier to establish a procedure regarding reported accidents and grade crossing device malfunctions.

7. Applicant shall consult with interested communities along its new and existing rail line to identify alternative safety measures to eliminate the need to sound train horns in the community, in accordance with FRA's final rule on the *Use of Locomotive Horns at Highway-Rail Grade Crossings*.

8. Applicant shall install reflective material on the back of all passive crossing warning devices, such as crossbucks, on the new and existing rail line. Reflective material shall be installed so that headlights from vehicles approaching the grade crossing on the opposite side of the rail line will strike the material and illuminate it to provide a continual illumination in the absence of a passing train and a flashing appearance when a train is passing due to the space between the rail cars. Prior to moving coal trains to and from the PRB, Applicant shall certify to the Board that it has complied with this condition as part of its quarterly reports required by Condition 147.

9. To the extent possible, Applicant shall minimize trains blocking grade crossings throughout its system.

Track Warning Devices and Track Infrastructure

10. Applicant shall properly maintain its new and existing rail line. Maintenance shall include trimming vegetation on railroad property that obscures visibility of oncoming trains and assuring that rail, railroad ties, track fastenings, and ballast material are in good repair, and that warning devices operate properly and are legible.

Hazardous Material Handling Issues

11. Prior to initiating any project-related construction and reconstruction activities, Applicant shall develop a Spill Prevention, Control, and Countermeasure Plan (Plan) to prevent spills of oil or other petroleum products and other hazardous materials during construction and reconstruction activities, and operation and maintenance of the rail line. At a minimum, the Plan shall address the following:

- Definition of what constitutes a spill.
- Requirements and procedures for reporting spills to appropriate government agencies.
- Methods of containing, recovering, and cleaning up spilled material.
- Equipment available to respond to spills where the equipment is located.
- List of government agencies and Applicant's management personnel to be consulted with in the event of a spill.

In the event of a spill, Applicant shall comply with its Plan and applicable Federal, state, and local regulations pertaining to containment of the spill and appropriate clean up.

12. Applicant shall comply with DOT Hazardous Materials regulations (49 CFR Parts 171 and 179) when handling, storing, or disposing hazardous materials. Applicant shall dispose of all materials that cannot be reused in accordance with applicable Federal, state, and local waste management regulations.

13. Applicant shall coordinate with the U.S. Environmental Protection Agency, Minnesota Department of Natural Resources, Minnesota Pollution Control Agency, South Dakota Department of Environment and Natural Resources, and Wyoming Department of Environmental Quality to determine the exact location of hazardous-material sites known to occur within the existing or proposed rail line rights-of-way and comply with applicable laws concerning these sites.

14. Applicant shall develop internal emergency response plans to allow for agencies and individuals to be notified in an emergency and to locate and inventory emergency equipment for use in dealing with emergencies. Applicant shall provide the emergency response plans to the relevant state and local entities prior to moving coal trains to and from the PRB.

15. Applicant shall notify the USFWS, and the appropriate state departments of natural resources, in the event of a reportable hazardous materials release with the potential to affect wetlands or wildlife habitat(s), particularly those of Federally threatened or endangered species.

16. Applicant shall use established standards for recycling or reuse of construction materials such as ballast and rail ties. When recycling construction materials is not a viable option, Applicant shall use disposal methods that comply with applicable solid hazardous waste regulations.

Fire Prevention

17. Prior to initiating any construction activities related to this project, Applicant shall, in consultation with the Natural Resource Conservation Service, local grazing organizations, appropriate Federal agencies, and local fire and emergency response departments, develop an adequate plan for fire prevention and suppression and subsequent land restoration, including natural habitats, during construction and operation of both the new and existing rail line. To the extent practicable, Applicant's plan shall ensure that all locomotives are equipped with functioning spark arresters on exhaust

stacks and fire extinguishers suitable for flammable liquid fires and provide for the installation of low-spark brake shoes, to the extent possible.

Miscellaneous

18. During project-related construction at grade crossings, Applicant shall maintain at least one open lane of traffic at all times or provide for detours and associated signage, as appropriate, to allow for the quick passage of emergency and other vehicles.

19. In undertaking project-related construction activities, Applicant shall use construction materials and safety practices recommended by the American Railway Engineering and Maintenance of Way Association (AREMA) and the recommended standards for track construction in the AREMA Manual for Railway Engineering. Applicant shall maintain the track and provide for track inspection in compliance with AREMA and FRA requirements at 49 CFR 213.

20. Applicant shall adhere to Federal Occupational Safety and Health Administration (OSHA), FRA, and State construction and operational safety regulations to minimize the potential for accidents.

21. Where practicable, Applicant shall refuel locomotives at designated refueling locations. Applicant shall exercise care during refueling to prevent overflows. In no event shall Applicant conduct refueling activities in a location where an inadvertent spill would enter a watercourse, wetland, or other environmentally sensitive area.

22. Applicant shall make Operation Lifesaver programs available to communities, schools, and other organizations located along the new and existing rail line.

23. Applicant shall consult and coordinate with school districts regarding placement on railroad property of equipment to permit use of in-vehicle warning devices on school buses.

24. Applicant shall assure that roadway approaches and rail line crossings for both new and existing grade crossings are constructed or re-constructed according to the standards of the American Association of State Highway and Transportation Officials (AASHTO) design manual, applicable state rules, guidelines, or statutes, and the AREMA standards. The goal of grade crossing design should be to eliminate rough or humped crossings to the extent practicable.

12.9.1.2 Transportation

25. To the extent possible, Applicant shall confine all project-related construction traffic to a temporary access road within the right-of-way or established public roads. Where traffic cannot be confined to temporary access roads or established public roads, Applicant shall make necessary arrangements with landowners to gain access from private roadways. The temporary access roads shall be used only during project-related construction. Any temporary access roads constructed outside the rail line right-of-way shall be removed upon completion of construction, unless otherwise agreed to in accordance with Condition 80.

26. Applicant shall consult with the State Departments of Transportation in Minnesota, South Dakota, and Wyoming and local road authorities in the affected counties or townships to ensure that project-related construction and reconstruction activities are consistent with state and local transportation plans, projects and proposals.

27. Applicant shall coordinate with the FRA, the state Departments of Transportation in Minnesota, South Dakota, and Wyoming, and local road authorities to develop a plan for the identification and eventual closure of limited-use public crossings, particularly those at or below 100 ADT, where appropriate alternative public crossings are available.

28. To provide access for the safe movement of farm equipment to fields and pastures which otherwise would have to operate on public highways, as a result of road closures following construction and during operation of Applicant's rail yards, Applicant shall provide or develop appropriate alternative access to these fields and pastures. Alternatives for access could include development of frontage roads adjacent to yard boundaries, agreements for farmers to coordinate with the yard master to cross through the yard, if rail operations and safety conditions permit, or development of additional access roads.

12.9.1.3 Land Use

29. Prior to initiation of construction or reconstruction activities related to this project, Applicant shall establish Community Liaison(s) to consult with affected communities, farmers, ranchers, businesses, landowners, and agencies; develop cooperative solutions to local concerns, be available for public meetings; and conduct periodic public outreach. The Community Liaison(s) shall have access to Applicant's upper management. Applicant shall provide the name and phone number of the Community Liaison(s) to

mayors and other appropriate local officials in each community through which the new and existing rail line passes.

30. In many communities, adjacent property owners have encroached on Applicant's existing right-of-way. Applicant shall make reasonable attempts to identify and notify these individuals of its proposed project-related reconstruction schedule through these areas prior to beginning reconstruction activities in the area.

31. Applicant shall erect temporary construction fencing, where appropriate, or permanent fencing, prior to initiation of construction or reconstruction activities related to this project. If practicable, in incorporated areas, permanent fencing shall consist of 8-foot high chain link fence installed along all rail line right-of-way adjacent to residential property. Applicant shall consult with appropriate state and local authorities in unincorporated areas to determine appropriate fencing design. Applicant shall inspect all fencing regularly and promptly repair any damaged fencing. This condition shall not apply to those communities that have executed Negotiated Agreements with Applicant.

32. In rural areas, Applicant shall minimize the installation of fencing to areas where safety is a concern and areas where fencing is required to prevent livestock wandering on to the rail line. Applicant shall consult with Tribal wildlife officials, the South Dakota Department of Game, Fish and Parks, the Wyoming Game and Fish Department, and the Minnesota Department of Natural Resources, other applicable agencies, and affected landowners to determine appropriate fencing designs for each state. Fencing in rural areas should generally consist of 5-strand barbed wire fence. In order to protect antelope and other big game, Applicant shall encourage landowners in areas where antelope are present to allow construction of 4-strand fence with a smooth bottom wire at least 16 inches above ground level and the top wire not more than 42 inches high, or other designs approved by the applicable state wildlife agency. Applicant shall consult with appropriate state and local authorities in rural areas to determine appropriate fencing design. In areas where the rail line is not fenced, appropriate signage shall be installed to protect the public.

33. At least 48 hours prior to initiating herbicide applications, Applicant shall make reasonable attempts to notify property owners adjacent to the right-of-way.

34. Applicant shall ensure that all areas disturbed by project-related construction or reconstruction activities which are not owned by the railroad (such as access roads, haul roads, crane pads, and borrow pits), are promptly restored as closely to their original condition as is practical following conclusion of project-related construction or reconstruction activities.

Applicant shall coordinate with the state Departments of Transportation and Federal and state land management agencies, subject to approval of the land owner, to determine if temporary access roads developed for project-related construction should be removed and the area restored to its previous condition or retained for maintenance by the agency, state, or county to provide additional access to public lands.

Agriculture/Ranching

35. Applicant shall provide its project-related reconstruction and construction schedule to affected farmers and ranchers to allow them to determine whether they should continue to crop or graze in right-of-way areas or discontinue such activities due to impending construction and reconstruction activities.

36. Applicant's Community Liaison(s), established by Condition 29, shall work with farmers and ranchers to remedy any damage to crops, pastures, or rangelands caused by Applicant's project-related construction or reconstruction activities and develop appropriate measures to prevent encroachment into the rail line right-of-way. The Community Liaison(s) also shall have authority to provide information on anticipated train schedules to farmers and ranchers to facilitate movement of equipment or livestock from one side of the rail line to the other.

37. In negotiations with farmers and ranchers, Applicant shall be guided by the Land Use Mitigation Policy and Plan negotiated between the Applicant with the Landowner Advisory Board, which addresses the following areas of concern:

- Direct and indirect land loss.
- Displacement of capital improvements (wells, windmills, corrals, outbuildings, irrigation systems, etc.).
- Noxious weed control.
- Fencing.
- Livestock casualty.
- Fire prevention and suppression.
- Fire casualty.
- Construction-related impacts.

Residential

38. Applicant's project-related construction vehicles, equipment, and workers shall not access work areas by crossing residential properties unless negotiated with and agreed to by the property owner.

39. In residential areas, Applicant shall store its equipment and materials in established storage areas or on Applicant's property whenever possible.

40. The Community Liaison(s), established in Condition 29, shall work with affected landowners to appropriately redress any damage to the landowner's property caused by Applicant's project-related construction or reconstruction activities.

Business and Industrial

41. Applicant's project-related construction vehicles, equipment, and workers shall not access work areas by crossing business or industrial areas, including parking areas or driveways, unless negotiated with the business owner.

42. In business and industrial areas, Applicant's project-related equipment and materials shall be stored in established storage areas or on Applicant's property. Parking of Applicant's equipment, or vehicles, or storage of materials along driveways or in parking lots is prohibited unless agreed to by the property owner.

43. The Community Liaison(s), established in Condition 29, shall work with affected businesses or industries to appropriately redress any damage to the business's property caused by Applicant's project-related construction or reconstruction activities.

44. Applicant shall insure that entrances and exits for businesses are not obstructed by project-related construction activities, except as required to move equipment.

Minerals and Mining

45. To help maintain the existing natural environment to the extent practicable, Applicant shall utilize materials such as rock, gravel, and sand available from local sources in its project-related activities.

46. Applicant shall consult with the owners of existing mines and quarries in the project area, particularly the quarry in Mankato, Minnesota, if Alternative M-3, the existing rail corridor alternative through Mankato, is built, to ensure that project-related construction and reconstruction activities minimize impacts to mine-related operations.

47. Prior to initiating construction of the new rail line, Applicant shall obtain any necessary permits from the U. S. Department of Interior, Bureau of Land Management (BLM) regarding mineral removal and oil and natural gas lessees.

48. Prior to undertaking project-related construction and reconstruction activities, Applicant shall make a reasonable effort to notify all mineral lessees/claimants where the Bureau of Land Management has mineral ownership.

Federal Lands

49. Applicant shall obtain a Special Use Permit from the U.S. Forest Service (USFS) granting an easement for the rail line to cross lands administered by the USFS designated as National Grasslands prior to initiating any project-related construction activities on USFS lands. Any conditions required under this Special Use Permit, in addition to those imposed by the Board, shall be adhered to by Applicant for activities on USFS lands.

50. Applicant shall obtain a permit from the U.S.D.I. Bureau of Reclamation (Reclamation) for crossing any facilities, irrigation ditches, or canals which are part of the Angostura Irrigation Project. Any conditions required under this permit, in addition to those imposed by the Board, shall be adhered to by Applicant for activities affecting Reclamation lands. In addition, Applicant shall comply with the Memorandum of Agreement executed by Applicant and Reclamation.

51. Applicant shall obtain a right-of-way grant from the U.S.D.I. BLM for the rail line to cross any public lands administered by BLM prior to initiating any project-related construction activities on public lands. Applicant shall comply with the terms and conditions required of this right-of-way grant, in addition to the mitigation imposed by the Board, for activities on public lands administered by BLM.

52. No USFWS lands, such as waterfowl production areas (WPAs) and wetland easements, will be crossed by the project-related construction or reconstruction. However, a new rail yard facility under Alternative C could be located across a wetlands easement. In that event, Applicant shall acquire and provide to the USFWS additional wetlands easement(s), replacing in kind, function, and value, and subject to USFWS approval and necessary environmental reviews and permitting, the wetland easement(s) lost from project-related rail yard construction.

State Lands

53. If any project-related construction activities, including location of new rail line, staging or laydown yards, or access points, either temporary or permanent, are required on state lands, Applicant shall consult with the appropriate state personnel prior to conducting

these activities. To the extent possible, Applicant shall avoid use of public lands as part of project development.

54. Applicant shall consult with managers of state lands to determine peak use periods for the state lands that provide for over-night use. Applicant shall attempt to schedule project-related construction activities to avoid these periods to the extent practical.

Utility Corridors

55. Applicant shall make reasonable efforts to identify all utilities within its existing right-of-way or that cross its existing right-of-way. Applicant shall notify the owner of each utility identified prior to project-related construction and reconstruction activities and coordinate with the owner to minimize damage to utilities. Applicant shall also consult with utility owners to design the rail line so that utilities are protected during project-related construction and reconstruction activities and subsequent maintenance and operation of Applicant's rail line.

56. Should previously unidentified utilities be discovered during project-related construction activities, Applicant shall cease construction, take appropriate action to protect the utility, and contact the utility owner immediately. In the event of damage to any utility during project-related construction, reconstruction, or operation, Applicant shall contact the utility owner immediately and take appropriate remedial action.

57. Applicant shall make reasonable efforts to protect existing drainage tile systems present in agricultural lands adjacent to the rail line right-of-way during project-related construction and reconstruction activities. Applicant shall repair as quickly as practicable, any damage to these systems due to project-related rail construction and reconstruction activities.

58. Applicant shall dispose of all non-recyclable and non-reusable solid waste generated during project-related construction and reconstruction activities in permitted landfills or other disposal sites in accordance with all applicable Federal, state, and local regulations.

12.9.1.4 Water Resources

59. Applicant shall obtain all Federal permits, including the Clean Water Act Section 404 and Rivers and Harbors Act of 1899 Section 10 permits, required by the U.S. Army Corps of Engineers, for project-related alteration or encroachment of wetlands, ponds, lakes, streams, or rivers, including the Missouri River, prior to initiation of any project-related construction and reconstruction. Additionally, Applicant shall obtain appropriate permits

from the State of Minnesota, including Protected Waters Permits, for impacts to water resources in Minnesota due to project-related construction and reconstruction activities.

60. Applicant shall obtain a National Pollutant Discharge Elimination System (NPDES) permit from each state (Minnesota, South Dakota, Wyoming) affected by project-related construction or reconstruction activities.

61. To minimize sedimentation into streams and waterways, Applicant shall use best management practices, such as silt screens and straw bale dikes, to minimize soil erosion, sedimentation, runoff, and surface instability during project-related construction and reconstruction activities. Applicant shall disturb the smallest area possible around any streams and tributaries, and shall consult with the Natural Resource Conservation Service, Minnesota Department of Natural Resources, South Dakota Department of Game, Fish, and Parks, Minnesota Pollution Control Agency, Wyoming Department of Game and Fish, and the state Departments of Transportation to ensure proper revegetation of disturbed areas as soon as practicable following project-related construction or reconstruction activities.

62. Applicant shall establish staging areas for project-related construction equipment in areas that are not environmentally sensitive in order to control erosion. When project-related construction activities, such as culvert and bridge work, require work in-stream beds, Applicant shall conduct these activities, to the extent possible, during low flow or periods when the stream is dry.

63. When engaging in any project-related construction activities near streams, Applicant shall construct temporary stream crossings as close to a right angle with the stream as possible. Applicant also shall design temporary bridges to span across the ordinary high water elevations of waterways to the extent practical. Following the project-related construction, Applicant promptly shall remove all temporary construction crossings and restore the area to as close to its original condition as possible.

64. Applicant shall ensure that, when used in its project-related construction activities, cofferdams or check dams consist of native material, sheet pile, sandbags, or other engineered designs matching the local site conditions. All materials used in the construction of cofferdams or check dams shall be completely removed upon completion of construction.

65. Applicant shall establish staging and laydown yards for project-related construction at least 300 feet from wetlands or waterways, if topography permits. If topographic conditions do not permit a 300-foot distance, these areas shall be located no less than 50 feet from the water's edge. Applicant shall not clear any vegetation between the yard area and the waterway or wetlands.

66. Applicant shall inspect all equipment for any oil, gas, diesel, anti-freeze, grease, hydraulic fluid, and other petroleum product leaks. If leaks are found, Applicant shall immediately remove the equipment from the construction zone, and repair or replace it.

67. Applicant shall ensure that all culverts and bridges are clear of debris to avoid potential flooding and stream flow alteration. Applicant shall design all project-related drainage crossing structures to pass a 100 year flood. Applicant shall reconstruct the existing rail line and construct the new rail line in such a way as to maintain current drainage patterns as much as possible and not result in new drainage of wetlands. Applicant shall inspect all drainages, bridges, and culverts semi-annually (or more frequently, as seasonal flows dictate) for debris accumulation. Applicant shall remove debris and properly dispose of it in an upland area.

68. To ensure the integrity of the Flood Control Project in Mankato, Minnesota if Alternative M-3, the existing rail corridor alternative through Mankato, is built, Applicant shall coordinate with the U.S. Army Corps of Engineers and local agencies in Mankato and obtain any necessary permits to prevent adverse impacts from project-related rail line construction and operation to flood control structures.

69. Applicant shall employ best management practices to control turbidity and disturbance to bottom sediments during project-related construction or rehabilitation of Applicant's bridge over the Missouri River at Pierre, South Dakota.

70. Applicant shall obtain a Bridge Permit from the U.S. Coast Guard for any project-related activities that would result in the extensive modification of Applicant's existing rail bridge over the Missouri River in Pierre, South Dakota or for construction of a new rail bridge over the river.

71. Applicant shall complete project-related construction and reconstruction activities through wetlands, when such wetlands extend outside the rail line right-of-way in continuous segments in order to minimize both the time required to complete construction and the time land adjacent to wetlands is disturbed.

72. Applicant shall ensure that any herbicides used in right-of-way maintenance to control vegetation are approved by EPA and are applied by licensed individuals who shall limit application to the extent necessary for rail operations. Applicant shall ensure that only herbicides determined by EPA to be acceptable for use around waterways shall be applied within 150 feet of perennial streams, rivers, and wetlands. Herbicides shall be applied so as to prevent or minimize drift off of the right-of-way onto adjacent areas.

73. Applicant shall ensure that any wells that could be affected by project-related construction or reconstruction activities are appropriately protected or capped to prevent well and groundwater contamination. If these wells are located on private land, Applicant shall first secure permission from the landowner before undertaking any such activities.

74. Applicant shall ensure that new project-related stream, river, and floodplain crossings are appropriately designed to minimize impacts to community-designed floodways. In those areas where a community-designed floodway does not exist, Applicant shall ensure that new waterway crossing structures are sufficient to pass 100 year flood without increasing the flood level by more than one-half foot.

75. Applicant shall consult with Minnesota Department of Natural Resources to design project-related waterway crossing structures to allow passage of fish.

76. Applicant shall prohibit project-related construction vehicles from driving in or crossing streams at other than established crossing points.

77. Applicant shall, to the extent practicable, ensure that any fill placed below the ordinary high water line of wetlands and streams is clean and free of fine materials. Applicant also shall use fill from local sources where practicable. All stream crossing points shall be returned to their pre-construction contours to the extent practicable, and the crossing banks reseeded or replanted with native species immediately following project-related construction.

12.9.1.5 Recreation

78. Applicant shall ensure that adequate clearances and access are provided for safe navigation of recreational boats on the Missouri River at the location of any project-related rehabilitation or construction of Applicant's bridge across the Missouri River at Pierre, South Dakota. Applicant also shall install appropriate warning devices to notify

boaters of project-related bridge construction activities and the location of a safe navigation route.

79. If Alternative M-3, the existing rail corridor alternative through Mankato, Minnesota is built, Applicant shall provide appropriate fencing along the rail line in Mankato adjacent to parks, trails, or other recreational areas to provide a safe environment for users of the facilities. Applicant shall consult with the City of Mankato about appropriate fencing design and the possibility of providing landscaping, including vegetative screening.

80. Applicant shall consult with Federal land managers such as the U.S. Forest Service and Bureau of Land Management, and state land managers including the Minnesota Department of Natural Resources, South Dakota Game, Fish and Parks, and Wyoming Game and Fish Department to determine locations where project-related construction and reconstruction activities will result in lost or reduced access to public lands due to temporary road closures or other construction related activities. Applicant shall develop a plan to provide alternative access to these lands during project-related construction and reconstruction activities and operation of unit coal trains to the extent practicable.

12.9.1.6 Air Quality

81. Applicant shall continue to consult with the Air Quality Working Group, consisting of agencies with appropriate technical expertise which was established for this project, to develop a mutually satisfactory approach to minimize the impacts of regional haze on Class I airsheds resulting from the locomotive emissions of Applicant's PRB coal trains. If no mutually satisfactory approach is developed within one year of the date of a Board decision giving final approval to the PRB Expansion Project, then Applicant shall fund 50 percent of the cost of a mediator to assist the parties to reach an agreement. However, the parties jointly may seek more time to continue their negotiations without a mediator if they believe that would be more productive. If the Working Group and Applicant jointly decide that further consultations and/or mediation would be fruitless, then the Working Group may be disbanded. Applicant shall apprise the Board of the status of the on going Working Group consultations in the quarterly reports required by Condition 147, and shall also notify the Board if a Memorandum of Agreement is executed, or if the Working Group is disbanded.

82. Applicant shall meet the EPA emissions standards for diesel-electric railroad locomotives (40 CFR Part 92) when purchasing and rebuilding locomotives for movement of unit coal trains throughout its system.

83. Applicant, to the extent practicable, shall adopt fuel saving practices, such as throttle modulation, dynamic braking, increased use of coasting trains, isolation of unneeded horsepower, and shutting down locomotives when not in use for more than an hour when temperatures are above 40 degrees, to reduce overall emissions during project-related operations.

84. To minimize fugitive dust emissions created during project-related construction and reconstruction activities, Applicant shall implement appropriate fugitive dust suppression controls, such as spraying water, applying a magnesium chloride treatment, tarp covers for haul vehicles, installation of wind barriers, or other state-approved measures. Applicant shall also regularly operate water trucks on haul roads to reduce dust.

85. Applicant shall obtain appropriate burning permits from the applicable state and local agencies, including the Minnesota Department of Natural Resources, Division of Forestry, South Dakota Department of Environment and Natural Resources, and Wyoming Department of Environmental Quality prior to any project-related open burning. Open burning shall only be used by Applicant if no other reasonable means of solid waste disposal is available. Applicant also shall notify local fire departments at least four hours before any project-related open burning and obtain verbal or written permission from the fire departments prior to open burning activities.

12.9.1.7 Noise and Vibration

86. Applicant shall consult with affected communities regarding Applicant's project-related construction schedule, including the hours during which construction takes place, to minimize, to the extent practicable, construction-related noise disturbances in residential areas.

87. Applicant shall ensure that curves are lubricated where doing so would reduce noise for residential or other noise sensitive receptors.

88. Prior to initiating project-related construction activities, Applicant shall develop a Construction Noise and Vibration Control Plan (the Plan) to minimize construction noise and vibration within the communities along the rail line. Applicant shall designate a noise control officer/engineer to develop the Plan, whose qualifications shall include at least five years' experience with major construction noise projects, and board certification membership with the Institute of Noise Control Engineering or registration as a Professional Engineer in Mechanical Engineering or Civil Engineering.

89. Applicant shall comply with FRA regulations (49 CFR Part 210) establishing decibel limits for train operations.

90. Applicant shall consult with interested communities along its new and existing rail line to identify measures to eliminate the need to sound train horns consistent with FRA standards.

91. Applicant shall regularly inspect rail car wheels to maintain wheels in good working order and minimize the development of wheel flats (areas where a round wheel becomes no longer round but has a flat section, leading to a clanking sound when a rail car passes). Prior to moving PRB coal trains, Applicant shall inspect new and existing rail for rough surfaces and grind these surfaces to provide a smooth rail surface during project-related rail operations.

92. As proposed by Applicant, continuously welded rail shall be used in Applicant's project related construction and reconstruction activities.

93. Applicant shall maintain project-related construction and maintenance vehicles in good working order with properly functioning mufflers to control noise.

94. Because rail switches contain a break in the continuously welded rail which can often create additional noise and ground vibration as trains pass over or through the switch, during project-related rehabilitation of the existing rail line, Applicant shall remove or consolidate switches determined to no longer be needed.

95. Applicant shall mitigate train wayside noise (locomotive engine and wheel/rail noise) for the noise-sensitive receptors along Applicant's existing rail line and project-related new rail line construction that fall within the 70 dBA Ldn noise contour for wayside noise, as specified below. With the written concurrence of the responsible local government(s), Applicant shall mitigate wayside noise with building sound insulating treatments, including insulated windows. The design goal for noise mitigation shall be a 10 dBA noise reduction. The minimum noise reduction achieved shall be 5 dBA.

The receptors that will require mitigation will depend on the anticipated tonnage levels of coal to be moved (20 million tons, 50 million tons, or 100 million tons annually). As coal train operations increase, the 70 dBA Ldn noise contour will widen. Therefore, within 2 years of transporting 20, 50, or 100 million tons of coal annually, Applicant shall certify to the Board in its quarterly reports required by Condition 147 that it has met this

condition for all affected receptors that fall within the 70 dBA noise contour for the level of coal then being moved.

Noise barrier performance shall be determined in accordance with ANSI S12.8-1987, *American National Standard Methods for Determination of Insertion Loss of Outdoor Noise Barriers*. Sound insulation performance shall be determined in accordance with ASTM 966-90, *Standard Guide for Field Measurements of Airborne Sound Insulation of Building Facades and Facade Elements*. This condition shall not apply to those communities or other entities that have executed Negotiated Agreements with Applicant.

Should noise mitigation be required at locations identified as containing structures that are potentially eligible for listing on the National Register of Historic Places, Applicant shall consult with the appropriate State Historic Preservation Officer to assess effects and implement appropriate mitigation measures.

The total number of noise sensitive receptors that meet the wayside noise mitigation criteria at the three applicable tonnage levels are listed below:

Table 12-1
Number of Noise Sensitive Receptors that Meet Wayside Noise Mitigation Criteria

County[a] Community[b]	Total Number of Receptors - 20 million tons	Total Number of Receptors - 50 million tons[c]	Total Number of Receptors - 100 million tons[c]
MINNESOTA			
Winona	2	5	1
Olmsted	11	0	1
Chester	0	1	1
Rochester	15	29	44
Dodge	3	0	4
Steele	0	0	6
Meriden	2	4	5
Waseca	1	0	2
Smiths Mill	0	1	1

Table 12-1
Number of Noise Sensitive Receptors that Meet Wayside Noise Mitigation Criteria

County[a] Community[b]	Total Number of Receptors - 20 million tons	Total Number of Receptors - 50 million tons[c]	Total Number of Receptors - 100 million tons[c]
Blue Earth - Existing Rail Line	1	4	0
Smiths Mill	1	2	1
Judson	0	2	4
Cambria	0	0	3
Blue Earth - Alternative M-2	13	9	9
Blue Earth - Alternative M-3	1	5	3
Eagle Lake	3	4	11
Mankato	31	7	40
Brown	0	4	6
Essig	0	0	1
Redwood	0	0	0
Lyon	0	0	1
Burchard	0	0	0
Lincoln	0	0	1
Verdi	0	0	2
SOUTH DAKOTA			
Brookings	0	7	22
Kingsbury	0	0	0
Manchester	0	0	2
Beadle	0	0	1
Hand	0	2	0
Vayland	0	0	0
Hyde	0	0	1
Holabird	0	0	0

Table 12-1
Number of Noise Sensitive Receptors that Meet Wayside Noise Mitigation Criteria

County[a] Community[b]	Total Number of Receptors - 20 million tons	Total Number of Receptors - 50 million tons[c]	Total Number of Receptors - 100 million tons[c]
Hughes	0	0	1
Canning	0	0	0
Alto	0	0	0
Pierre	0	13	29
Stanley	0	1	0
Wendte	0	0	2
Jones	0	0	0
Capa	0	0	0
Haakon	0	2	0
Nowlin	0	0	0
Powell	0	0	0
Jackson	0	0	0
Pennington	0	1	0
Custer	0	0	0
Fall River	0	1	0
Smithwick	0	0	0
Heppner	0	0	0
Dudley	0	1	1
Marietta	0	1	0
WYOMING			
Niobrara	0	0	0
Weston	0	0	0
Campbell	0	0	0
Converse	0	0	0
TOTAL	**36[d]**	**81[e]**	**143[f]**

Table 12-1
Number of Noise Sensitive Receptors that Meet Wayside Noise Mitigation Criteria

County[a] Community[b]	Total Number of Receptors - 20 million tons	Total Number of Receptors - 50 million tons[c]	Total Number of Receptors - 100 million tons[c]

[a] Represents number of noise sensitive receptors located outside the limits of established communities within the county.
[b] Represents number of noise sensitive receptors located within the limits of the established community for which the receptor(s) are listed.
[c] Represents number of noise sensitive receptors eligible for mitigation and not mitigated under previous levels of rail operations.
d Add 13 noise sensitive receptors for Alternative M-2. Add 35 noise sensitive receptors for Alternative M-3.
e Add 9 noise sensitive receptors for Alternative M-2. Add 16 noise sensitive receptors for Alternative M-3.
f Add 9 noise sensitive receptors for Alternative M-2. Add 54 noise sensitive receptors for Alternative M-3.

96. To minimize noise and vibration, Applicant shall install and properly maintain rail and rail beds according to the AREMA standards and shall regularly maintain locomotives, keeping mufflers in good working order to control noise.

12.9.1.8 Biological Resources

97. Applicant shall comply with the Biological Assessment that has been prepared under Section 7 of the Endangered Species Act, 16 U.S.C. 1531, and the Biological Opinion prepared by the USFWS for this project.

98. Applicant shall develop and implement, in consultation with the USFWS, South Dakota Department of Game, Fish and Parks, Wyoming Game and Fish Department, and Minnesota Department of Natural Resources, a habitat restoration plan designed to compensate for the loss of trees, shrubs, and other woody vegetation, prairies, and other important wildlife habitats as a result of construction and reconstruction related to this project. Applicant's plan shall focus in particular on riparian areas or other areas that are not addressed as part of wetland mitigation.

99. Applicant shall conduct a survey for raptor nests, including bald eagles, prior to the initiation of project-related construction activities. Applicant also shall attempt to minimize disturbance to active nests until after active nesting has been completed for the

season. Applicant shall consult and coordinate with the applicable state agency (South Dakota Department of Game, Fish and Parks, Wyoming Game and Fish Department, or Minnesota Department of Natural Resources) to determine the appropriate action to compensate for raptor nests removed or destroyed during project-related construction activities.

100. Prior to initiating project-related construction activities, Applicant shall consult with the Natural Resource Conservation Service, local grazing associations, and interested landowners, to develop an adequate plan for controlling noxious weeds. The plan should include an approved list of herbicides.

101. Prior to initiating new rail line construction activities in South Dakota and Wyoming, Applicant shall consult with the South Dakota Department of Game, Fish and Parks, Wyoming Department of Game and Fish, and Tribal wildlife officials to develop mutually acceptable under- and overpass designs and locations to protect wildlife, particularly big game. Considerations for under- and overpass locations should include providing access to wildlife water sources, particularly for big game. Applicant shall develop additional water sources for wildlife to replace those lost, adversely affected, or rendered inaccessible to wildlife due to new rail line construction if suitable alternative sources are not available to wildlife.

102. Prior to initiating new rail line construction activities in South Dakota and Wyoming, Applicant shall coordinate with the South Dakota Department of Game, Fish and Parks, Wyoming Game and Fish Department, and Tribal wildlife officials to develop adequate fencing standards and designs to allow for movement of wildlife, particularly big game, across the right-of-way. Applicant shall encourage the use of these types of fencing when negotiating with landowners on fence installation on private property. (See also Condition 32.)

103. Applicant shall remove carcasses from the rail line right-of-way as part of normal rail line inspection and maintenance activities.

104. Prior to initiation of project-related reconstruction activities in Minnesota and South Dakota, Applicant shall conduct a survey of the existing rail line right-of-way to identify native prairie remnants within the existing right-of-way. To the extent practicable, these areas shall be avoided during project-related reconstruction activities. Applicant also shall coordinate with the Minnesota Department of Natural Resources and the South Dakota Department of Game, Fish and Parks to develop a plan for the re-establishment of prairie vegetation in prairie remnants which cannot be avoided during project-related

reconstruction activities. Such a plan should include, as appropriate, the stripping and stockpiling of topsoil for placement in the disturbed area during revegetation and the use of seed previously taken from the area or other local prairie remnants to re-vegetate disturbed prairie remnants within the existing right-of-way.

12.9.1.9 Cultural Resources

105. Applicant shall provide written or other resources to inform its workers (both temporary and full-time) of the applicable Federal, state, and local requirements for the protection of archaeological resources, graves, other cultural resources, and wildlife (including those concerning threatened and endangered species), as well as the applicable requirements of trespass laws, traffic regulations (such as speed limits and weight restrictions), and regulations pertaining to waste disposal. Applicant's resources shall inform construction workers of the importance of protecting archaeological resources, graves and other cultural resources, and how to recognize and treat these resources. Applicant shall also establish policies to deter casual collection by construction workers of cultural resources.

106. Applicant shall comply with the Programmatic Agreement and Identification Plan that has been developed through the Section 106 consultation process under the National Historic Preservation Act.

107. Applicant shall implement all the mitigation included in the Memorandum of Agreement that has been developed to ensure that the concerns of Native American Tribes related to the proposed project which are outside the Section 106 process under the National Historic Preservation Act are considered and addressed.

108. Prior to initiating project-related construction or rehabilitation of Applicant's bridge over the Missouri River located at Pierre, South Dakota, Applicant shall ensure that the Section 106 process of the National Historic Preservation Act is completed for all archaeological sites and historic structures that would be impacted by the proposed project.

12.9.1.10 Environmental Justice

109. Applicant shall consult and coordinate with the Lakota Sioux Tribe to develop a Hazardous Material Emergency Response Plan to account for the special needs of Tribal members on the Pine Ridge Reservation in South Dakota, particularly those inhabiting Red Shirt, South Dakota. This plan shall include Applicant-sponsored training in hazardous materials response for appropriate Tribal personnel with emphasis on methods to protect the Cheyenne River, an important resource to the Pine Ridge Reservation, in

the event of a spill of petroleum products such as oil or diesel fuel, or other hazardous materials.

110. Prior to initiation of project-related construction or reconstruction activities, Applicant shall establish a Tribal Liaison to consult with interested and affected Tribes, develop cooperative solutions to the Tribes' concerns, discuss possible job opportunities for Tribal members, be available for Tribal meetings, conduct public outreach to educate the public on the importance of archaeological and paleontological resources to Native American Tribes, and conduct periodic Tribal outreach. This Tribal Liaison shall have access to Applicant's upper management. Applicant shall provide the name and phone number of the Tribal Liaison to Tribal officials including Tribal chairmen, Tribal Historic Preservation Officers, and other Tribal designees.

12.9.1.11 Geology and Soils

111. Applicant shall limit ground disturbance to only the areas necessary for project-related construction and reconstruction activities.

112. During project-related earthmoving activities, Applicant shall remove topsoil and segregate it from subsoil. Applicant shall also stockpile topsoil for later application during reclamation of the right-of-way. Applicant shall place the topsoil stockpiles in areas that would minimize the potential for erosion, and use appropriate erosion control measures around all stockpiles to prevent erosion.

113. Applicant shall commence reclamation of disturbed areas as soon as practicable after project-related construction ends along a particular stretch of rail line. The goal of reclamation shall be the rapid and permanent reestablishment of ground cover on disturbed areas. Applicant shall attempt to reclaim disturbed areas prior to cessation of project-related construction activities for the winter to avoid disturbed soils being subject to erosion throughout the winter. If weather or season precludes the prompt reestablishment of vegetation, Applicant shall use measures such as mulching, netting, or ground blankets to prevent erosion until reseeding can be completed.

114. Prior to initiating project-related construction activities, Applicant shall consult with the local offices of the Natural Resources Conservation Service, State Departments of Natural Resources, Fish and Game, and State Departments of Transportation, to develop an appropriate plan for restoring and revegetating the disturbed areas (including appropriate greenstrip seed mix specifications). Applicant shall monitor reclaimed areas for three

years. For those areas where efforts to establish vegetative cover have been unsuccessful after one year, Applicant shall reseed annually until vegetative cover is established.

115. Applicant shall take reasonable steps to ensure that fill material used in project-related construction activities is free of contaminants.

116. Applicant shall design and construct the new rail line so as to consider local geologic potentials for slumping and landslides and develop and implement adequate measures to minimize the potential for these to occur.

12.9.1.12 Paleontological Resources

117. Prior to engaging in any project-related construction across Federal lands, Applicant shall conduct testing within the proposed right-of-way where there is a potential for paleontological resources of Class 3 or higher. This testing shall be done to the depth below ground surface at which the rail line is anticipated to be constructed. Prior to initiating project-related construction activities in the areas that warrant testing, Applicant shall prepare a paleontological resources report identifying any resources encountered, as well as the strata most likely to contain significant paleontological resources. Applicant shall submit the report to the Board and the appropriate Federal land managing agency. After submitting the report, Applicant shall consult with the appropriate Federal land managing agency to develop appropriate measures to minimize damage to paleontological resources during project-related construction. These measures may include a requirement that the Applicant retain a paleontologist to be present during earthmoving activities affecting the strata most likely to contain significant fossil resources.

118. If paleontological resources are encountered during project-related construction activities on Federal lands, Applicant shall immediately cease construction activities, inform the appropriate Federal land managing agency of the identified resource, and arrange for evaluation of the resource and determination of how to protect the resource by a qualified paleontologist. The paleontologist may be employed by the Federal land managing agency, the relevant State Historic Preservation Office, or may be retained by Applicant. Any paleontological resources recovered from project-related construction activities across Federal lands shall remain the property of the United States Government.

119. If significant paleontological resources are encountered during project-related construction activities on private lands, construction crews shall notify the appropriate agencies and take appropriate actions at the work site to protect paleontological resources.

12.9.3 NEGOTIATED AGREEMENTS

120. Applicant shall comply with the terms of all Negotiated Agreements developed with local communities and other entities regarding environmental issues associated with the PRB Expansion Project. The following list provides the Negotiated Agreements received by the Board to-date:

Table 12-2
Negotiated Agreements

Minnesota			
Balaton	Byron	Claremont	Cobden
Dodge Center	Dover	Eyota	Garvin
Janesville	Kasson	Lake Benton	Lamberton
Lewiston	Minnesota City	New Ulm	Owatonna
Revere	Sanborn	Sleepy Eye	Springfield
Stockton	St. Charles	Tracy	Tyler
Utica	Walnut Grove	Waseca	
South Dakota			
Arlington	Aurora	Blunt	Cavour
Cottonwood	Desmet	Elkton	Ft. Pierre
Harrold	Hetland	Highmore	Huron
Iroquois	Lake Preston	Midland	Miller
Phillip	Quinn	Ree Heights	St. Lawrence
Volga	Wall	Wessington	Wolsey

12.9.4 RECOMMENDED SITE-SPECIFIC MITIGATION MEASURES

12.9.4.1 Minnesota

121. Applicant shall install two grade separated crossings in Rochester, Minnesota, at Broadway Avenue, East Circle Drive, West Silver Lake Drive/2nd Avenue NE, 6th Avenue, or another mutually acceptable location. Applicant shall consult with the FRA, appropriate state and local transportation authorities, and the City of Rochester on the design (for example, whether the road would go over or under the rail line), location, and funding of these grade separations. Applicant shall complete installation of one grade separated crossing prior to transporting more than 20 million tons of coal annually through Rochester for more than one year. Applicant shall complete installation of a second grade separated crossing prior to transporting more than 50 million tons of coal annually through Rochester for more than one year. These grade separated crossings should be designed and located to facilitate the movement of emergency vehicles to and from medical facilities providing emergency services in Rochester, including St. Mary's Hospital and Methodist Hospital, which are both facilities of the Mayo Clinic. During the Board's oversight period, Applicant shall apprise SEA of the progress being made toward implementation of this condition in the quarterly reports required by Condition 147.

122. Prior to initiation of project-related reconstruction activities in Rochester, Minnesota, Applicant's upper management shall meet with representatives of the Mayo Clinic to consult and coordinate with the Mayo Clinic on how best to minimize project-related impacts on the Clinic. Applicant's upper management shall continue to meet with Clinic representatives on a regular basis during the Board's oversight period.

123. Applicant, prior to transporting 50 million tons of coal annually through Rochester, Minnesota, shall coordinate with the City of Rochester, Olmsted County, Minnesota DOT, and the FRA to develop additional grade crossing protection devices at the existing grade crossing of Broadway Avenue. This is necessary because the accident frequency at this crossing would exceed the Board's criteria of significance, even with the protection proposed in DM&E's Grade Crossing Mitigation Plan, which is discussed in Condition 1.

124. In determining the final design and location of sidings constructed as part of project-related rail line reconstruction, Applicant shall consider the feasibility of shifting the location of the siding proposed in the area of Minneopa State Park in Minnesota to avoid the park. If Applicant determines that it is necessary to build a siding in the park, Applicant shall consider the feasibility of constructing the siding on the south of the tracks on the eastern end, to avoid channel changes in the Minnesota River, or on the north side

of the existing track on the west end, to minimize wetland impacts. Applicant shall report the results of its considerations to the Board as part of Condition 147.

125. In determining the final design and location of sidings constructed as part of project-related rail line reconstruction, Applicant shall consider locating the siding proposed in the area between Sanborn and Lamberton in Redwood County, Minnesota, on the north side of the existing rail line to avoid impacting the well-vegetated, intact riverbanks on the south side of the existing line. Applicant shall report the results of its considerations to the Board as part of Condition 147.

126. If Applicant determines that the bridge over the access road to Lake Benton, Lincoln County, Minnesota requires reconstruction to permit the movement of unit coal trains, Applicant shall consult with the Minnesota DOT to consider ways to design and construct the bridge so as to ensure the safe passage of emergency vehicles.

127. Applicant shall coordinate with the City of Courtland, Minnesota to ensure protection of the city's sewer line during project-related reconstruction of the existing rail line.

128. If Alternative M-2, the Mankato, Minnesota southern route, is built, Applicant shall consult with Blue Earth County, Minnesota, to explore the feasibility and cost effectiveness of constructing any new rail line on a trestle or bridge rather than fill in the Blue Earth River valley.

129. If Alternative M-2, the Mankato, Minnesota southern route, is built, Applicant, prior to transporting 50 million tons of coal annually over Alternative M-2, shall coordinate with Blue Earth County, Minnesota DOT and the FRA to develop additional grade crossing protection devices at the proposed crossing of Township Road 194. This is necessary because the accident frequency at this crossing would exceed the Board's criteria of significance, even with the protection proposed in DM&E's Grade Crossing Mitigation Plan, which is discussed in Condition 1.

130. If Alternative M-2, the Mankato, Minnesota southern route, is built, Applicant shall coordinate with Mount Kato Ski Area to minimize, to the extent possible, the potential impacts of construction of Alternative M-2 across ski area property.

131. Applicant shall consider installation of a pedestrian and bike underpass of the Red Jacket Trail in Blue Earth County, south of Mankato, Minnesota, if Alternative M-2, the Mankato, Minnesota southern route, is built. At a minimum, Applicant shall install and

maintain warning signs clearly advising the public to proceed with caution due to the possible presence of trains.

132. If Alternative M-2, the Mankato, Minnesota southern route, is built, Applicant shall attempt to avoid the holding pond known for County Highway 90 at Saddle Club, Blue Earth County, Minnesota. If the holding pond cannot be avoided, Applicant shall consult with Blue Earth County regarding its replacement and be responsible for the costs associated with replacing the holding pond.

133. If Alternative M-2, the Mankato, Minnesota southern route is built, Applicant shall consult with Blue Earth County, Minnesota regarding whether the portion of Alternative M-2 west of Mankato, Minnesota can be constructed so as to avoid or minimize impacts to the proposed Minneopa Trail.

134. Applicant shall work with the City of Mankato, Minnesota to determine if additional access can be developed to Land of Memories Park. Should a mutually acceptable plan for additional access be developed, Applicant shall work with the City to help the City secure funding for the project.

135. If Alternative M-3, the existing rail corridor alternative through Mankato, is built and Applicant determines that it must rebuild the existing bridge over the Blue Earth River to permit operation of unit coal trains, Applicant shall consider incorporating a pedestrian/bicycle crossing as part of the new rail bridge design.

136. If Alternative M-3, the existing rail corridor alternative through Mankato, Minnesota is built, for the pedestrian crossings of the Sakatah Singing Hills State Trail, in Blue Earth County, Applicant shall install and maintain warning signs clearly advising the public to proceed with caution due to the possible presence of trains.

137. Applicant shall consider locating the Middle East Staging and Marshaling Yard near New Ulm, Minnesota in such a way to allow residents of Shag Road access to Shag Road from both ends of the rail yard. Applicant shall report the results of its considerations to the Board as part of Condition 147.

12.9.4.2 South Dakota

138. Applicant shall install a grade separated crossing in Pierre, South Dakota, at Sioux Avenue or another mutually acceptable location, to be completed within one year after DM&E transports more than 50 million tons of coal through Pierre annually for more than one

year. Applicant shall consult with the FRA, appropriate state and local transportation authorities, and the City of Pierre on the design (for example, whether the road would go over or under the rail line), location, and funding of this separation. Applicant shall apprise SEA of the progress being made toward implementation of this condition in the quarterly reports required by Condition 147.

139. Applicant shall consider improving the existing rail line underpass off of Park Street in Fort Pierre, South Dakota to allow a paved crossing suitable for passage of emergency vehicles as part of any project-related reconstruction or replacement of the existing Bad River Bridge.

140. Applicant shall consult with the City of Wall, South Dakota and the South Dakota DOT to consider whether the proposed new rail line west of Wall can be designed and constructed to allow the expansion of the Wall Municipal Airport, as currently proposed.

141. Applicant shall consult with the South Dakota DOT to consider whether the grade separation of US Highway 18 east of Edgemont, South Dakota proposed in Applicant's Grade Crossing Mitigation Plan can be designed so as to accommodate future expansion of this highway to four lanes.

142. If Applicant determines that the bridge over 6th Avenue in Brookings, South Dakota, requires reconstruction to permit movement of unit coal trains, Applicant shall coordinate with the City of Brookings and the South Dakota DOT to explore whether the bridge can be designed and constructed to ensure safe passage of emergency vehicles.

143. For the pedestrian crossings at 12th Avenue, 6th Avenue, and the Interstate 29 pedestrian and bike trail in Brookings, South Dakota, Applicant shall install and maintain warning signs clearly advising the public to proceed with caution due to the possible presence of trains.

12.9.4.3 Wyoming

144. Applicant, prior to transporting 50 million tons of coal annually over Alternative C, shall coordinate with Niobrara County, Wyoming DOT, and the FRA to develop additional grade crossing protection devices at the proposed crossing of U.S. Highway 85. Additionally, Applicant, prior to transporting 50 million tons of coal annually over Alternative C, shall coordinate with Campbell County, Wyoming DOT and the FRA to develop additional grade crossing protection devices at the proposed crossing of Bishop Road, and shall do the same for State Highway 450 prior to transporting 100 million tons

of coal annually. This is necessary because the accident frequency at these crossings would exceed the Board's criteria of significance, even with the protection proposed in DM&E's Grade Crossing Mitigation Plan, which is discussed in Condition 1.

12.9.4.4 Monitoring and Enforcement

145. If there is a material change in the facts or circumstances upon which the Board relied in imposing specific environmental mitigation conditions, and upon petition by any party who demonstrates such material change, the Board may review the continuing applicability of its final mitigation, if warranted.

146. Applicant shall retain a third-party contractor to assist SEA in the monitoring and enforcement of mitigation measures on an as-needed basis until Applicant has completed project-related construction and reconstruction activities, as well as any oversight period the Board imposes.

147. To ensure Applicant's compliance with the environmental mitigation conditions imposed by the Board, Applicant shall submit to SEA reports on no less than a quarterly basis for the duration of the oversight period, documenting the status of its mitigation implementation for each condition. The oversight period in this case shall be the first two years of project-related operations or any oversight period the Board imposes.

* * * * *

ATTACHMENTS

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ATTACHMENT A
CORPS OF ENGINEERS
GUIDELINES FOR MITIGATION OF WETLANDS AND WATERS OF THE UNITED STATES

1. Basic Information Requirements for Wetland and Waters Mitigation Proposals

Wetland and waters creation, restoration, and/or enhancement mitigation proposals associated with the DM&E project, at a minimum, must meet the following basic information requirements to address Omaha District needs for Section 404 of the Clean Water Act. Refinements and clarification of the information will occur as each mitigation proposal is assessed. Wetland and waters mitigation will be assessed to ensure compliance with the February 6, 1990 Memorandum of Agreement Between the EPA and Corps Concerning the Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines.

1. Mitigation Goals

All mitigation design proposals must include a text section that clearly specifies its goals. This discussion will need to include acreage, type (Cowardin classification and Hydrogeomorphic setting), and function(s) of wetlands or other waters lost at the project site. It also needs to specify the particular attributes (acreage, type, vegetation, management strategy, etc.) of the mitigation design which are intended to offset specified losses. If out-of-kind or off-site mitigation is proposed, justification is required.

2. Existing conditions of mitigation site

A description of the mitigation site in terms of location, size, immediate surrounding land use, historic land use, context in relation to watershed, vegetation, soils, and hydrology is required. A copy of the applicable portion of the USGS Quadrangle and/or National Wetland Inventory map with the site identified on it must be included. Aerial photography of the site is recommended but not required.

a. Delineation

- If wetlands and other waters of the U.S. are present at the mitigation site, a delineation of these areas must be accomplished in accordance the 1987 Corps of Engineers Wetland Delineation Manual and its revisions.

b. Baseline functionality

- If the mitigation plan involves wetland restoration and/or enhancement, information demonstrating current degradation is required. Functional assessment models may be required to assist in pretreatment determinations as well as predict and measure final results and goals. Preservation, an option of last resort, will require a detailed site assessment as well as documentation of development threat.

3. Design of Mitigation Site

a. Drawings

i. Scaled plan view drawings

- full size and reduced sized copies
- no smaller than 1" = 400,' however, 1" = 100' preferred
- existing and proposed topography at a scale from which accurate determinations relative to hydrology and vegetative community can be readily discerned (see cross sections below). 1-foot contours are recommended.
- existing wetland and other waters delineation boundaries clearly identified - spoil disposal areas
- anticipated wetland cover type (Cowardin et.al.) identified - soil erosion and sediment control features identified

- location of cross sections
- location of monitoring transect(s) and permanent photo locations, vegetation sampling plots, piezometers or other hydrology data collection points, etc.

ii. Scaled cross sections

- show existing and proposed ground surfaces with elevations indicated. Placed topsoil depths must be specified.
- ordinary high water elevation and anticipated groundwater levels.
- width, depth, and bottom elevations of water supply ditches and top elevations and widths of berms, dams, etc.

b. Other treatments

i. Soils handling

- wetland soils at the impact site may be required to be transported to the mitigation site for placement. Stockpiling and timing of placement of topsoil materials must be included.

ii. Vegetation planting

- For seed mixes, designate species composition, pounds per acre, wetland indicator status, and seed source. For use of saplings, sprigs, plugs, mats, etc., identify species composition, wetland indicator status, spacing, and total numbers per species. Timing of planting must be specified.

c. Hydrology

Baseline data supporting proposed water supply of a mitigation site is mandatory. Specification of type of water supply (passive or managed) is also required. Hydrology information needs include:

i. Passive

This water supply is dependent on natural groundwater fluctuations and/or overbank flooding with no human management techniques. Groundwater supported mitigation designs need to be correlated to site specific data gathered from the use of shallow groundwater wells, soils, spring flow data, and/or other site investigation data. Much of this information can be gathered during a delineation of the site. Although several years of groundwater data is preferred, measurement of an average year's peak groundwater level is acceptable. Site specific soils data, if accurate, may be used as a surrogate for this data element.

- Data is also required to document and justify overbank flooding. This typically involves detailed surveying as well as hydrologic modeling. At a minimum, the anticipated frequency and duration of flooding needs to be specified.

- If the mitigation area is to be supported by precipitation, a water budget will be required including identification of anticipated run off volumes and evaporation rates.

ii. Managed

- This water supply is a controlled supply system (diversions, canals, ditches, etc.) and typically incorporates the use of impoundment features (berms, dams, dikes, etc.) with water control structures. This is the least preferred hydrology supply option.

- Construction plans and cross sections are needed for water supply elements as well as impoundment features.

- Water rights - Mitigation sites typically require an adjudicated water right. Demonstration of the right's availability and priority need to accompany the mitigation proposal for managed hydrology systems.

- A water management plan. Dates of initial inundation, draw down, and re-inundation (if proposed) must be specified. The responsible party to operate and maintain the site needs to be identified.

4. Monitoring

Section 404 permits that are issued for the project will require monitoring of any mitigation area and will include the submission of annual reports. Monitoring and report compilation must be accomplished by a qualified individual with experience in wetland mitigation. Reports can be required for a period of 3 years or until success is achieved.

a. Success Criteria/Performance Standards

- Success criteria are to be correlated to the impacted wetland site(s). However, site availability, practicability, and overriding environmental goals, such as threatened and endangered species habitat opportunities, can result in mitigation success criteria that is not correlated to the impact site. The resulting wetland mitigation areas must meet 1987 Corps of Engineers Delineation Manual criteria to be considered as wetlands.

b. Sampling protocols

- Sampling protocols and intensity for all three parameters (vegetation, soils, and hydrology) must be explicitly described in the mitigation proposal.

- vegetation - transect with quadrat sampling (preferred), point intercept, and other forms of vegetation assessment are acceptable. Total cover and relative cover per species is required and is to be correlated to impact wetland data, where possible. Adequate sampling intensity must be accomplished to demonstrate that proposed wetland mitigation acreage has been achieved. Inclusion of a weed control plan needed with a list of undesirable species (state or county weed lists) that will be managed if they comprise a certain % of a sample area or mitigation site.

- hydrology - excavation of test pits or use of shallow groundwater wells to determine groundwater levels is required. Use of staff gages in areas designed to be flooded, even intermittently, must be included. Frequency of site visit(s) must be stipulated. Monitoring is to be done during the known or projected peak of the hydrograph and/or seasonal high groundwater. Documentation of low water period elevations may also be required.

- soils - excavation of soil pits and examination for redoximorphic features is required. Soil profile data is to be logged with depth of features found. While hydric soil indicators may not become evident within the required monitoring period, demonstration of how hydric soil conditions are concluded as being present or absent needs to be stated.

c. Report content

- Reports must clearly identify success criteria and how the mitigation site compares to those criteria. Reports need to include a comparison of actual wetland mitigation acreage to proposed acreage as well to project impact acreage. Mitigation areas need to be broken down based on type (Cowardin classification). Reports need to include author's interpretation of data and discussion as to how mitigation is determined to be demonstrating success or failure. Problems that arise need to be identified in the reports as well as corrective measures that have been implemented or proposed. Corrective actions need to be coordinated with the Corps prior to implementation.

- Routine wetland delineation data forms, or similar Corps-approved forms which contain appropriate data fields.

- Plan view map (see section 3(a)(i) above)

- Color photos of mitigation site from permanently established locations.

11. **Additional Information Requirements and Other Mitigation Options**

In addition to the basic information requirements previously stated, more extensive data and information may be required, at the Corps' discretion, to ensure compliance with regulatory requirements and assure success and adequacy of mitigation proposals. Other items that can be required include:

1. Contingency plans - Depending on the mitigation design as well as problems that arise with mitigation site construction, formulation of a contingency plan may be required. This can include abandonment of the mitigation site and new construction at another site.

2. Deed Restrictions/Conservation Easements - These may be required depending on the mitigation proposal. These instruments will not be required for mitigation sites on Federal lands.

3. Performance Bonds - To ensure that mitigation is accomplished that meets objectives and goals, performance bonds may be required.

Other mitigation strategies DM&E may pursue involve wetland mitigation banking or in-lieu fee mitigation. DM&E will be required to meet the requirements set forth in Federal Guidance on the Use of In-Lieu Fee Arrangements for Compensatory Mitigation Under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act, Notice, Federal Register Vol. 65, No. 216 and Federal Guidance for the Establishment, Use and Operation of Mitigation Banks; Notice, Federal Register Vol. 60, No. 228. Many of the information items listed above may be required with these types of mitigation proposals.

ATTACHMENT B

U.S. FOREST SERVICE
MITIGATION PLAN REQUIREMENTS
FOR DM&E RAILROAD

The following are mitigation measures that are required by the U.S. Forest Service for inclusion in the Final Environmental Impact Statement for the DM&E Railroad Powder River Basin proposal. These mitigation measures will apply only to the proposed new line construction on federal lands affected in the states of South Dakota and Wyoming.

The U.S. Forest Service has identified the impacts to National Forest System lands resulting from the proposed DM&E Railroad project and has considered mitigation measures that may be imposed to mitigate these project impacts. The final decision on the mitigation measures which will be required of the DM&E Railroad will be disclosed in the U.S. Forest Service Record of Decision. Any Mitigation measures required by the U.S. Forest Service will apply only to the proposed new line construction on federal lands affected in the States of South Dakota and Wyoming.

The following mitigation measures are based on laws, regulations and policy as well as best management practices. It is important to note that not all mitigation measures may be identified at this time until a final decision has been made in the U.S. Forest Service Record of Decision. Additionally, changed circumstances or new information that may come to light during any implementation of this project such as a new species listing under the *Endangered Species Act* will cause mitigation measures to be imposed where they may not have been previously required. Where impacts are known to occur, mitigation practices will be required.

There are several stages of this project. If approved, there will be a construction phase, daily operations and maintenance phase, and a monitoring phase. Each of these phases will have mitigation measures applied that may differ from the previous stage. For example, mitigation measures required during construction may not be applicable to the day-to-day operation of the railroad and vice versa. Therefore, the mitigation measures are being developed that will address both long-term and short-term impacts of the railroad construction and operation.

The U.S. Forest Service will apply the standards for mitigation to the project as provided in 40 CFR 1508.20, which states "Mitigation includes:

a. Avoiding the impact altogether by not taking a certain action or parts of an action.
b. Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
c. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.

d. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
e. Compensating for the impact by replacing or providing substitute resources or environments."

IT IS IMPORTANT TO NOTE that the original railroad route proposal, (Alternative B, Proposed Action) as submitted by DM&E Railroad Corporation in their Special Use Application, was **voluntarily modified by the DM&E Railroad** due to certain preliminary concerns by federal agencies that potential impacts along that proposed route could preclude the issuance of a Special Use Permit. The DM&E Railroad took a hard look that their proposed route and based on the environmental impacts identified early on, modified portions of their route into what is now known as Alternative C (Modified Proposed Action).

In essence, the DM&E Railroad **mitigated** many of the potential environmental effects of their proposal at considerable cost to them by following the purpose stated in 40 CFR 1508.20(a) above. This action, taken by the DM&E Railroad, is acknowledged by the U.S. Forest Service as project mitigation.

Management Objectives for each Management Prescription Area that the proposed railroad and its alternative routes pass through are provided in the existing *Medicine Bow National Forest Land and Resource Management Plan* and the *Nebraska National Forest Land and Resource Management Plan.* **If the Northern Great Plains Plan Revision for the Thunder Basin National Grassland** is approved, prior to the signing of a Record of Decision for the Powder River Expansion Project, then the Management Objectives for each Management Prescription Area impacted by the railroad will be those objectives under the revised National Grasslands Plan and not those presently provided for under the existing Forest Plans.

Project impacts affecting management objectives and standards and guidelines across the length of the routes will be mitigated, where possible, to acceptable levels. However, there will be some impacts and effects that will not be mitigatable. Where those situations occur, the U.S. Forest Service and the proponent, DM&E Railroad, will discuss alternative voluntary measures that, while not mitigating in kind, will reflect the proponent's stated intent to be environmentally-sensitive and to work in concert with the land.

SUMMARY OF SIGNIFICANT ENVIRONMENTAL IMPACTS:

Based on the environmental analysis to date, the Surface Transportation Board has determined that the Powder River Basin Expansion Project would result in significant long-term adverse environmental impacts as follows:

In Western South Dakota and Wyoming

- Safety, including emergency vehicle access and response
- Geology and soils, including paleontological resources
- Agriculture
- Ranching
- Traditional Tribal Cultural Properties
- Residential, business and public land uses
- Surface water and wetlands
- Groundwater
- Air Quality
- Noise and Vibration
- Vegetation
- Threatened and endangered species, including other species of Federal concern
- Cultural resources
- Aesthetic/Visual resources

In particular, construction of the proposed rail line would result in conversion of thousands of acres of land to rail line right-of-way, including hundreds of acres of public land, thereby removing it from current land uses. Many farms and ranches would be crossed, resulting in inconveniences and likely a need to significantly alter existing farming and ranching operations.

Construction would also clear and disturb these lands, removing vegetation and disturbing soils, reducing wildlife habitat and potentially affecting water quality. Significant paleontological and cultural resources could be destroyed as a result of excavation and earthmoving activities.

The DM&E project would also result in a dramatic increase in the number of trains on the existing system (from approximately 3 per day to a maximum of 37). During rail operations, farms and ranches would be inconvenienced and farming and ranching operations affected. Noise from locomotives would disturb wildlife, livestock, and local residents. Air emissions from locomotives would create reduced visibility within "Class I Airsheds" (areas of high visual quality, such as national parklands). Rail line crossings of roads would delay traffic and provide opportunities for vehicle/train and train/pedestrian accidents.

If an action alternative is selected, the DM&E Railroad will prepare and submit an operating plan as a part of the requirements of the easement. This operating plan establishes how railroad operations will occur and how and when mitigation measures will be implemented. At a minimum, the operating plan will address the following items during construction, operation, and maintenance:

Construction Activities Plan (staging, people camps, equipment use, construction schedule, gravel and water sources, access roads, law enforcement, fencing, etc.)

Operating Plan (including daily operations, numbers of trains, train schedules, etc.)

Noxious/Invasive Weed Plan (management and treatment of noxious weeds along route)

Fire Plan (suppression, coordination with states and counties and federal Agencies).

Cultural Resources Plan (Programmatic Agreement)

Paleontological Plan (discovery, curation, interpretation)

Grazing Allotment Analysis (readjusting allotment boundaries and AMPs))

Roads Plan (road density, road obliteration, new proposed roads)

Public Access Plan (providing public access where appropriate)

Wildlife Plan

Visual Quality Plan

Air Quality Plan (per Surface Transportation Board)

Wetlands Mitigation Plan (per U.S. Army Corps of Engineers requirements)

Transportation and Public Safety Plan (per Surface Transportation Board requirements, including compliance with Occupational Safety and Health Administration (OSHA), state and Federal Railroad Administration (FRA) and the development of an Emergency Response Plan (ERP)

Safety Environmental Health Action Plan (including management of industrial discharges, sedimentation/erosion control, storm water discharge, mine and surface reclamation, spill prevention, control and countermeasures, storage tanks, handling waste materials, etc.

Soil and Revegetation/Reclamation Plan (including approved seed mixes, erosion control, compaction prevention, etc.)

REQUIRED MITIGATION MEASURES BY RESOURCE AREA

Air Quality:

Resource Definition: Clean Air Act of July 14, 1955, as amended Part C, - Prevention of Significant Deterioration of Air Quality, Subpart 2, Visibility Protection For Federal Class I Areas

Class I Airshed – *A Class I Airshed is an area designated by Congress as having "special national or regional value from a natural, scenic, recreation, or historical perspective." Examples of Class I areas include national parks and wilderness areas larger than 5,000 acres and other areas designated by the states or Tribes. Class I areas are designed to have the best air quality and, therefore, have the smallest allowable increments. Designation as a PSD Class I (Class I) area affords the area an increased level of protection for its air quality.*

Class I Airsheds of concern for this project in Badlands National Park/Sage Creek Wilderness Area and Wind Cave National Park.

Mitigation for air quality will be developed based upon recommendations of the Air Quality Working Group, including representatives of the Region VIII Environmental Protection Agency, the U.S. Forest Service, U.S. Park Service, Wyoming Department of Environmental Quality, and the South Dakota Department of Environmental Quality. Additionally, the U.S. Forest Service concurs with mitigation measures defined by the Surface Transportation Board in the Final EIS or decision as follows:

In the Draft EIS, SEA recommended a condition (Condition 68) requiring DM&E Railroad to comply with the U.S. Environmental Protection Agency emission standards for diesel-electric railroad locomotives when purchasing and rebuilding locomotives for movement of unit coal trains throught its system. EPA commented that DM&E Railroad, as a small business, would normally be exempt from compliance with these provisions. However, it is within the Board's jurisdiction to condition its grant of construction and operation wuthority on compliance with standards that a railroad may ordinarily be exempt from. By recommending mitigation requiring DM&E Railroad to comply with EPA standards in the Final EIS, the Surface Transportation Board is addressing potential impacts to air quality that may result from DM&E Railroad's proposal in a reasonable way without undermining the normal applicability of EPA's small business exemption.

In addition to the mitigation measures outlined above, the following is required:

1. DM&E Railroad shall work to reach agreement with the recommendations of the Air Quality Working Group to minimize the impacts of regional haze on Class I Airsheds resulting from the locomotive emissions of DM&E Powder River Basin coal trains.

2. DM&E Railroad, to the extent practicable for project-related operations, Shall adopt fuel saving practices, such as throttle modulations, dynamic braking, increased use of coasting trains, isolation of unneeded horsepower, and shutting down locomotives when not in use for more than an hour when temperatures are above 40 degrees to reduce overall emissions.

3. To minimize fugitive dust emissions created during project-related Construction activities, DM&E Railroad shall use such control methods as water spraying of construction areas, tarp covers for haul vehicles, installation of wind barriers, or chemical treatment. Applicant shall also regularly operate water trucks on haul roads to reduce dust.

4. DM &E Railroad shall maintain project-related construction and Maintenance vehicles in good working order with properly functioning mufflers to control emissions and noise.

5. DM&E Railroad shall notify local fire departments at least 4 hours Before any project related open burning or comploy with local department agreements on notification and obtain verbal or written permissions from fire departments prior to burning activities.

6. DM&E Railroad will be required to obtain a permit from the Wyoming And/or South Dakota Department of Environmental Quality prior to doing any burning activities that may have an effect on air quality or visibility.

Archeological, Historical and Prehistoric Resources:

Resource Definition: 36 CFR 261.2

Archaeological Resources means "*any material remains of prehistoric or historic human life or activities which are of archaeological interest and are at least 50 years of age, and the physical site, location, or context in which they are found.*"

Historical Resource means "*any structural, architectural, archaeological, artifactual or other material remains of past human life or activities which are of historical interest and are at least 50 years of age, and the physical site, location, or context in which they are found.*"

Historic Property means *"any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places, maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria.*

Prehistoric Resource means *"any structural, architectural, archaeological, artifactual or other material remains of past human life or activity generally prior to the advent of written records and of anthropological interest, and the physical site, location, or context in which they are found.*

IMPACT: The construction of the railroad including all earth-disturbing pre and post-construction activities will have a significant effect on archeological, prehistoric, and historic resources that are located within the construction area. Resource surveys show that there are archaeological, prehistoric, and historical resource sites within certain areas of the proposed rail line corridor in Minnesota, South Dakota, and Wyoming.

The Programmatic Agreement (Appendix ____of the FEIS) outlines the process by which the DM&E Railroad will mitigate for the impacts to cultural resources. The Memorandum of Agreement (Appendix _____of the FEIS) outlines the process for communicating and consulting with Native American Indian Tribes and tribal governments during the analysis process. In addition to the provisions of both documents, the U.S. Forest Service will require the DM&E Railroad to:

a. Maintain and continue access to sacred sites by Native American Indians as per Executive Order 13007.

b. Monitor all construction sites for historic properties to ensure protection of these sites as well as monitor and protect known eligible historic properties impacted by construction by preventing looting of sites and cultural resources. This may involve the U.S. Forest Service archeologist to a degree that he or she feels necessary. If later sites are discovered, DM&E Railroad will provide protection and mitigation of any impacts at their expense.

c. Provide access to allow traditional plant collection to continue if traditional plant sites are identified.

d. Monitor erosion at cut and fill areas for impacts to cultural resources.

e. If a previously undiscovered archeological, historical, or cultural property is encountered during construction, or previously known properties will be affected in an unanticipated manner, all activity will cease within 300 feet of the property to avoid or minimize harm to the property until the Forest Service and/or agency responsible for administering the land, can evaluate and, if necessary, authorize steps to mitigate impacts to the new discovery.

Evaluation and mitigation will be carried out in consultation with the appropriate agencies and SHPO(s), THPO(s)/cultural resource representatives designated by the Tribes and Council as expeditiously as possible in accordance with 36 CFR 800.13(b). The Forest Service monitor/archeologist will authorize the resumption of construction activities in writing.

f. Prior to the issuance of any U.S. Forest Service Special Use Permit or easement, DM&E Railroad will survey and evaluate all cultural, historic, or prehistoric properties within the construction area.

g. DM&E Railroad will implement the tribal monitoring program as designed and traditional and spiritual relationships shall be maintained.

Paleontological Resources:

Resource Definition: 36 CFR 261.2

Paleontological Resource means *"any evidence of fossilized remains of muticellular invertebrate and vertebrate animals and multicellular plants, including imprints thereof. Organic remains primarily collected for use as fuel such as coal and oil are paleontological resources, but are excluded from the prohibitions under the rule."*

Authority: FSM 2800 – Minerals and Geology

2881.1 Current Statutory Authorities: The following statutory authorities (which are included but not limited to) govern the issuance and administration of special-use authorizations, and management of paleontological resources on National Forest System (NFS) lands:

1. The *Organic Administrative Act of June 4, 1897 (16 USC 551)*, as amended, authorizes the use of National Forest Systems lands to qualified institutions and individuals for the collection of paleontological resources involving the excavation or removal of vertebrate fossil and significant invertebrate and plant fossil resources when these activities are in the public interest for administrative, scientific or educational purposes.

2. The *Archeological Resources Protection Act of 1979 (16 USC 470(a))* authorizes the use and protection of National Forest Systems lands for paleontological resources associated with archeological resources. 16 U.S.C. 470kk, Section 12(b) allows the collection of rocks and minerals including fossils for personal or amateur use without a permit.

3. The *National Environmental Policy Act of 1969 (42 USC 4321 et seq.)* states that it is the continuing responsibility of the Federal Government to

use all practicable means, consistent with other essential considerations of national policy, to preserve important historic, cultural, and natural aspects of our national heritage.

4. The *Federal Property and Administrative Services Act of 1949 (63 Stat. 377)*, as amended, allows for the long term loan of Federal Property, including repository and curation agreements with museums and other qualified institutions.

5. The *Federal Grants and Cooperative Agreements Act of 1`977 (31 USC 6301-6308)* provides for federal assistance and allows for the transfer of a thing of value to the State, local government, or other recipient to carry out a public purpose of support.

2881.2 – Regulations: The following regulations provide direction for paleontological resources management on National Forest System lands:

1. Title 36 CFR Part 251, Subpart B. This subpart provides direction for special uses management on National Forest System lands, including paleontological resources.

2. Title 36 CFR, Part 261, Subpart A. This subpart defines "paleontological resources". It prohibits damaging or removing any natural feature, excavating, damaging, or removing any vertebrate fossil or removing any paleontological resource for commercial purposes without a special use permit; or excavating, damaging, or removing any cave resource from a cave without a special use authorization, or removing any cave resource for commercial purposes. When provided in an order, it is prohibited to go into any area closed for the protection of objects, or areas of paleontological interest. Regulations may be issued by the Regional Forester, if delegated by the Chief, prohibiting acts or omissions within all or any part of the area over which he has jurisdiction for protection of objects or places of paleontological interest.

3. Title 36 CFR, Part 296. This part provides guidance for special use permits for and management of archeological resources, including associated paleontological resources. Special use permits are not required for the collection of rocks and minerals, including fossils, for personal use that are not considered archeological resources.

2882 – Objectives: The objectives of the paleontological resources program are to protect and manage paleontological (fossil) resources that are stewardship resources important to our natural resource heritage. Paleontological resources have multiple use values, (1) as a legacy for present and future generations; (2) for scientific significance, education and interpretation; and (3) for recreational opportunities and their aesthetic qualities.

2883 – **Policy:** Paleontological resources are objects of national significance, and need to be preserved for the inspiration and benefit of the people of the United States. They are important natural aspects of our national heritage.

2883.1 – Forest Service Policy: Unless otherwise prohibited through law, regulation, order, land-use plan or closure, a special use permit is not required for casual collecting of invertebrate and plant fossils for personal use. Collecting of vertebrate fossils and significant invertebrate and plant fossils is only allowed for scientific or educational purposes, and requires a special use permit. Qualified applicants must meet certain qualifications. Commercial collection of any type of fossil specimen, in whole or in part, is prohibited.

2884 – **Authorizations:** Authorize the use of National Forest System lands under the proper statutory or regulatory authority with terms and conditions that protect paleontological resource values and the interests of the Federal government. Two types of Special Use Permits may be authorized, (1) for inventory and other research activities with little or no surface disturbing collecting of fossil specimens; and (2) for excavation and related activities. Paleontological resources may also be collected for protection and preservation purposes where there is potential for unauthorized removal, or imminent loss by erosion, of a significant specimen either under special use permit, memorandum of understanding, or other agreement. At the discretion of the authorized officer, a special use permit may not be required for research and/or collecting activities involving no or minimal surface disturbance.

2886.8 – Significance Criteria for Paleontological Resources – Vertebrate, Invertebrate, and Plant Fossils, including Ichnofossils: Scientific significance may be attributed to a fossil specimen or trace, and/or to its context (e.g. location in time and space; association with other relevant evidence; or association with cultural resources). The scientific significance of a paleontological specimen or trace, and/or its context is determined by meeting any one of the following criteria:

1. Specimen-based criteria:
   a. Represents an unknown or undescribed/unnamed taxon.
   b. Represents a rare taxon, or rare morphological/anatomical element or feature. The "rareness" criterion comprises either absolute rareness in the fossil record, or relative or contextual rareness as described below.
   c. Represents a vertebrate taxon.
   d. Exhibits an exceptional type and/or quality of preservation.
   e. Exhibits remarkable or anomalous morphological/anatomical character(s) or taphonomic alteration.
   f. Represents "soft tissue" preservation or presence.
   g. Exhibits cultural affiliation, e.g. alteration or use by ancient humans.

2. Context-based criteria:

a. Is associated in a relevant way with other evidence of scientific interest, providing taphonomic, ecologic, environmental, behavioral, cultural or evolutionary information.
b. Is evidence that extends and/or constrains the stratigraphic, chronologic, and/or geographic range of a taxon or functional paraphyletic group.

2889 – Forest Service Classifications: (PFYC): Probable Fossil Yield Classification is a planning tool developed by the Paleontology Center of Excellence and the 1994 Region 2 Paleontology Initiative. Geological units, usually at the formation or member level, are classified according to the probability of yielding paleontological resources that are of concern to land managers. This classification is based largely on how likely a geologic unit is to produce vertebrate fossils. This system is based on probabilities, not certainties or special circumstances. There will be exception to each criterion used as the basis for classification. These are expected and should be handled as unique cases.

Several classifications are necessary to group paleontological resources in categories for management purposes. These are described briefly below and more complete information follows:

SCIENTIFIC SIGNIFICANCE (see above)
Applies to a specimen or associated specimens, as opposed to a site or locality.
Criteria based
Used for identifying fossils that should remain in public ownership, fossils whose collection requires a permit, as one of the weighted factors in determining the sensitivity of a locality.

SENSITIVITY RANKING
Applies to a locality or site, not a specimen and not a geological unit.
Based on weighted criteria.
Used for identifying area requiring special management considerations based on their paleontological resources, and for prescribing management in those areas.

AREA CLASSIFICATION
Applies to the area of a proposed decision or operation or undertaking.
Condition 1 = Areas that are known to contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils.
Condition 2 = Areas with exposures of geologic units or settings that have high potential to contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils.
Condition 3 = Areas that are very unlikely to produce vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils based on their surficial geology, igneous or metamorphic rocks, extremely young alluvium, colluvium or Aeolian deposits or the presence of deep soils.
Used to determine whether mitigation is required to meet NEPA requirements.

FOSSIL POTENTIAL RANKINGS

Applies to geologic units in the area of a proposed development, surface disturbing activity, sale or land exchange after fossil potential surveys have been conducted.

High Potential: High potential is given to areas in which exposed geologic units are known to contain, or are very likely to contain, fossil resources that meet the criteria for scientific significance. The geologic units in a high potential area should be considered to have high potential throughout their extent, unless surveys or other information suggests that limited lithologies are productive.

Low Potential: Low Potential is assigned to areas in which exposed geologic units are known to produce few or no significant fossil resources. The Forest Service may consider, in some cases, that limited field sampling is required before assigning this ranking. Igneous and metamorphic rocks are generally included in this ranking because they rarely preserve fossils.

Undetermined Potential: This ranking is assigned to areas where there is little or no information about fossil resources. A complete literature search and museum records survey of a Primary Fossil Potential Survey are required before a ranking changes from Undetermined to either High or Low Potential.

Used for identifying fossils that should remain in public ownership, recommending treatments for discovered resources, and mitigation plans.

U.S. FOREST SERVICE
PROBABLE FOSSIL YIELD CLASSIFICATION AND LOCALITY/SITE SENSITIVITY RANKINGS FOR FOSSIL RESOURCES

Geological units, usually at the formation or member level, are classified according to the probability of yielding paleontological resources that are of concern to land managers. Existing statutes and policies regulate the collection and disposition of paleontological resources, particularly vertebrate and significant invertebrate and plant fossils. Therefore, this classification is based largely on how likely a geologic unit is to reduce vertebrate fossils of origin. The classes are described below with some examples of corresponding management considerations or actions.

CLASS 1

Description: Igneous or metamorphic origin.

Basis: Vishnu Schist

Management Example: No Paleontology acres weighting for budget allocation to Geology acres. Exclusion for Paleontology under NEPA.

The land manager's concern for Paleoresources on Class 1 acres is virtually non-existent. Ground disturbing activities will not require mitigation for paleontology except in extremely rare circumstances. Plans and budgets do not need to address the range of potential uses, availability or management options. Much of the acreage of high altitude, mountainous (directed toward the mountain cores) districts will be determined Class 1.

CLASS 2

Description: Sedimentary geologic units that are not likely to contain fossils of vertebrates nor scientifically significant non-vertebrate fossils.

Basis: Age greater than Devonian.
Age younger than 10,000 years before present.
Deep-water marine origin.
Aeolian origin.

Example: Madison Limestone; Navajo Sandstone

Management Example: No weighting for Paleontology acres in budget allocation to Geology acres. Allocation in Geology reports criterion for Paleontology reports to designate free access areas (MAR item 81.2). **Mitigation under NEPA not likely to be necessary.**

The land manager's concern for Paleoresources on Class 2 acres should be weighted towards high access or availability and low risk management. For example, Class 2 acres are appropriate for designating as open to collection without a permit, once cleared by an assessment. The manager's concern for mitigation of adverse impacts to paleoresources should be low and is only likely to occur in response to very rare circumstances. However, some fossiliferous units do occur in montane areas, such as the Madison Limestone.

CLASS 3

Description: Fossiliferous sedimentary and volcaniclastic (units formed by volcanic eruptions such as volcanic ash) geologic units whose fossil content varies in significances, abundance, and predictable occurrence. Also sedimentary units of unknown fossil potential.

Basis: Applies to marine sedimentary units.
Applies to volcanic units composed mainly of ash, these are commonly terrestrial deposits but some do occur in rocks of marine origin.
Usually containing scientifically important specimens, but not necessarily exhibit quality.
Usually vertebrates and nonvertebrates are found in association.
Usually easily weathered rock such as shale; outcrops generally gentle slopes and rounded profile.

Example: Sundance Formation; Ardmore Bentonite

Management Example: None to possible heavy weighting for Paleontology acres in budget allocation. Geological reports criterion for Paleontology reports may utilize a wide range of availability designations throughout management areas. Because a geological unit may have an unknown fossil potential, **NEPA assessment is a necessity. Mitigation measures will also be dependent upon classification.** Geological units that are initially designated as Class 3, may be given another classification as more geologic and paleontologic knowledge is acquire during NEPA and other management activities.

The land manager's concern for Paleoresources on Class 3 acres may extend across a wide variety of management actions. Some areas will require very little budget and management while providing high levels of availability and unregulated access. Other areas may require annual budget allocation for continuous management. The land manager may be concerned with this classification because significant locations may be discovered, thus requiring budget and management attention. Depending upon degree of significance/classification, these units may be included in planning.

CLASS 4

Description: Class 4 Paleontology acres are Class 5 acres that have lowered risks of adverse impacts due to human activities and/or lowered risk of natural degradation.

Basis: Significant vegetative cover; outcrop is not exposed.
Areas of exposed outcrop are smaller than 2 contiguous acres.
Areas of historically producing significant fossils have been degraded by intense fossil collecting and other destructive recreational activities.
Vertical and/or inaccessible outcrop.
High fossil yield of vertebrates.
High fossil yield of nonvertebrates of scientific importance, especially if these are in association with vertebrates or marker beds or "biostratigraphic zones".
Once exposed, risk of theft or destruction, erosion, etc.

Example: Covered acres of Pierre Formation and White River Formation/Group.

Management Example: Paleontology acres heavily weighted for budget allocations. **No exclusion from NEPA, especially for ground disturbing activities and a paleontologist is required during operation as well as during mitigation. These acres will require attention when ground-disturbing activities are proposed, thus initiating budget, planning, and any other special management attention.**

The land manager's concern for Paleoresources on Class 4 acres may extend across a wide variety of management actions. Some areas will require very little budget and management attention until ground disturbing are identified. **Detailed NEPA**

assessment and mitigation closely monitored by a paleontologist is required during ground disturbing activities in Class 4 areas. Depending upon the mitigation recommendations, reclamation including reseeding of the disturbed area may be a necessity. In areas of depletion of the fossil resource directly associated with intense collection or destructive recreational usage, a 20-year closure of fossil collecting may be required to allow the area to rest.

CLASS 5

Description: Fossiliferous sedimentary units containing vertebrate fossils and probable association with nonvertebrate fossils and are at a high risk of adverse impacts due to human activities as well as natural degradation.

Basis: Areas larger than 2 continuous acres of bare outcrops; none to little vegetative cover.
Known to produce vertebrates.
Known to produce scientifically important nonvertebrates, especially dealing with marker beds of "biostratigraphic zones".
Known to produce vertebrates in close association with nonvertebrates.
Preservation of fossils is commonly high quality; great museum exhibits.
Known for high fossil yield; site density for a section may be more than 30.
Known for high theft risk; highly sought after by collectors.
Fossils that are designated to be in imminent danger of loss/destruction either by erosion, theft, or trampling by cattle, in grazing allotments.
Applies to fossiliferous cave deposits.

Example: Exposed Lance (Hell Creek) and White River Formations.

Management Example: Heavy weighting for Paleontology acres for annual and long-term budget allocations and inclusion in planning. May need special management attention or designation as low access or availability and high risk management area. **Detailed NEPA assessment and mitigation would be required for a wide spectrum of proposed activities. A paleontologist would be required during all levels of operations, especially during ground-disturbing activities. No exclusion of NEPA or mitigation**.

The land manager's concern for Paleoresources on Class 5 acres may be managed with the most restrictive management actions with Paleontology areas requiring annual and some long-range budget, forest planning, and management attention and providing high levels of regulated access or protection**. Detailed NEPA assessment and mitigation, closely monitored by a paleontologist will be a necessity in acres designated as Class 5.** Areas may be suitable for special management attention, including closure to very restrictive permitted collection. For some mountainous areas with cave resources, classifiction of fossiliferous cave deposits warrants a Class 5. Cave deposits less than 10,000 years old that have no human influence should be in this category.

REQUIRED PALEONTOLOGICAL MITIGATION PLAN

POTENTIAL IMPACT: Scientifically important paleontological resources may be located on Federal lands in the states of South Dakota and Wyoming that will be disturbed during the construction of the new railroad line. Loss or damage of scientifically important paleontological resources on Federal lands is considered a significant adverse impact and should be avoided unless specific mitigation is developed for protection, scientific investigation and recovery, and curation. The proposed DM&E Railroad line will cross and disturb lands with a Probable Fossil Yield Code rating of Class 3, 4 and 5 which will likely have significant adverse impacts on the paleontological resource. Therefore, mitigation will be required as follows:

Phase 1 – Preconstruction Survey and Recovery

1. Prior to construction on Federal lands, DM&E Railroad will obtain a Special Use Permit from the U.S. Forest Service and Bureau of Land Management. DM&E Railroad will hire qualified paleontologists approved and directed by the relevant federal land management agencies (e.g. U.S. Forest Service for NFS lands, or Bureau of Land Management for public lands) having the requisite expertise to identify and classify scientifically important paleontological resources. Such approved paleontologists will complete a surface survey for scientifically important fossils on Federal lands with a Probable Fossil Yield Code (PFYC) of 4 or 5 (see GIS coverage for these areas and Forest Plans) that would be materially disturbed by excavation activities.

2. Prior to the start of construction when possible and during all phases of construction and operation, DM&E shall, at its own expense, ensure and certify that the scientifically important fossils will be recovered, protected, and properly curated to prevent loss of important scientific fossils. Such certification shall include a signed verification of the approved paleontologists and Forest Service to the effect that such fossils have been so recovered and protected. DM&E Railroad shall also prepare at its expense, a curation plan which shall cover how the finds will be transported, and determine what federally-approved repository shall be used to house fossils.

Phase 2 – Construction, Monitoring and Recovery

1. To detect important buried fossils that might not be ascertainable during the pre-construction survey, an on-site paleontologist or team of paleontologist (as determined and approved by the relevant land management agency) will be present at all times during excavation activities on Federal lands with a Probable Fossil Yield Code (PFYC) of 4 or 5.

2. If a scientifically important fossil is found during excavation, all work that would adversely affect the fossil or reasonable area surrounding the fossil will cease immediately. Such cessation of work will be determined by the U.S. Forest Service and/or Bureau of Land Management Monitors and an approved paleontologist or team will determine the disposition of the find. If a scientifically important fossil is discovered, no further work that would adversely affect the find or the area surrounding the find will be permitted until the fossil has been properly recovered. DM&E Railroad will be responsible for all costs associated with such recovery and the curation, protection, and storage of such recovery in a federally-approved facility and location. Work will re-commence upon the written authorization of the U.S. Forest Service and/or BLM paleontologist.

3. Where discovery of human influence are determined, or associated human activity with fossils, there will be a qualified acheologist on-site to monitor and determine the significance of the find.

4. The primary project contractor will be held responsible for and ensure that reasonable and accurate self-monitoring of excavation activities on Federal lands with a PFYC of 3 or less for scientifically important fossils will occur and will consult with U.S. Forest Service approved paleontologists when necessary. If scientifically important fossils are found, the U.S. Forest Service shall be notified and a determination made as to the significance of the discovery and whether or not excavation of said find should occur. Excavation and/or construction may be halted if merited.

5. At the conclusion of construction, DM&E Railroad shall prepare and publish at their expense a Summary of Findings that will document all significant discoveries found during excavation and construction of the rail line, including fossil finding locations, stratographic context, geologic formation and research potential. Said document will be the property of the United States Federal Government.

6. All findings are the property of the United States Federal Government.

7. DM&E Railroad will be responsible for ensuring the confidentiality of all finding locations and type within their easement and will be responsible for its contractors and subcontractors practicing the same standard.

8. If future slumping of soils, cuts and fills, etc. produces a discovery, then the same mitigation measures shall apply.

Transportation/Public Safety:

Authority: FSM 7700 Transportation System
FSM 5300 Law Enforcement
FSM 6700 Health and Safety

Current Statutory Authorities: The following statutory authorities (which are included but not limited to) govern the issuance and administration of special-use authorizations, and management of transportation resources and health and public safety on National Forest System (NFS) lands:

36 CFR 261.9(a) Damaging any natural feature or other property of the United States

36 CFR 261.10(a) Constructing, placing, or maintaining any kind of road, trail, structure, fence, enclosure, communication equipment, or other improvement on National Forest system land or facilities without a special use authorization, contract, or approved operating plan.

36 CFR 261.12(c) Damaging and leaving in a damaged condition any such road, trail, or segment thereof.

(d) Blocking, restricting, or otherwise interfering with the use of a road, trail or gate.

36 CFR 261.54 Special Forest Supervisor Order

© Using a road for commercial hauling without a permit or written authorization.

Federal Land Policy and Management Act of 1976
Title III – Administration
Title V – Rights of Way

National Forest Roads and Trails Act, 1964

In addition to the required Transportation and Safety Plan (per Surface Transportation Board requirements), the U.S. Forest Service will require the following:

1. The DM&E Railroad will develop a plan acceptable to the U.S. Forest Service to develop a plan for the development and authorization of roads needed during construction, and roads needed for access to the rail line.

2. DM&E Railroad will be required to construct, obliterate, and provide rail line crossings of roads identified by the Forest Service in the Roads Analysis, attached as Appendix A to this Mitigation Plan.

3. Road access to public lands will be maintained during and after construction by DM&E Railroad. The U.S. Forest Service will retain all easements on all road, wildlife and livestock crossings through, under and over the right-of-way.

4. All appropriate and legally required safety standards will be applied to any new roads and/or road crossings, such as proper signage, warning systems, and whistle-blowing. Roads identified by the Forest Service for proponent maintenance will be maintained to U.S. Forest Service standards.

5. Cattle guards will be installed by DM&E Railroad on all railroad right-of-way fences at road crossings with an associated gate on the side, both of which will be maintained by the proponent. Gates will be installed on fencelines adjacent to cattle guards. The Forest Service will determine gate and cattle guard standards. The DM&E Railroad will annually maintain cattle guards and gates.

6. Any facilities or roads not analyzed in the Environmental Impact Statement will require additional analysis under the *National Environmental Policy Act*, which will include but not be limited to cultural resource surveys.

7. All Special Use Applications needed shall be submitted a minimum of eight months prior to construction or use. Use of existing and construction or development of all new roads across U.S. Forest Service lands by DM&E Railroad employees, contractors and agents will require a Special Use Permit issued only to the DM&E Railroad. Use of new and existing U.S. Forest Service roads will require an assessment by the Forest Service as to the level of use, and will determine the standard to which the roads must be maintained by the proponent. Commercial use authorization will be required when equipment exceeds 26,000 pounds.

Where long-term access is needed for operation and maintenance of the railroad, an access/road use agreement will be required.

8. DM&E Railroad will limit personal vehicle use and provide group transportation or bussing where practicable.

9. DM&E Railroad will be responsible for safety signing and the maintenance of all signs associated with the railroad.

Grazing Resource:

Authority: FSM 2200 Range Mangement

Current Statutory Authorities: The following statutory authorities (which are included but not limited to) govern the issuance and administration of special-use

authorizations, and management of livestock grazing on National Forest System (NFS) lands:

36 CFR 222 Range Management, Subpart A, Grazing and Livestock Use on National Forest System Lands.

IMPACT: The construction, operation and maintenance of the railroad will cause a significant impact to agricultural lands and certain permitted land uses and activities, i.e. grazing of livestock on the National Grasslands due to separation of pastures, separation of livestock from water, removal of new construction of fencelines, etc. Impacts to any permitted grazing allotment shall be mitigated so that the U.S. Forest Service is made whole and the permittee can continue to maintain grazing operations with as little interruption as possible. The following is required of the DM&E Railroad:

1. Where livestock is separated or loses water sources as a result of the rail line bisecting an allotment, the DM&E Railroad will provide water, i.e. by developing a new well, dam, spring, windmill, etc. sufficient to replace the loss or access to water, at its expense.

2. Prior to construction, fencing of the rail line easement will be done to U.S. Forest Service standards. Appropriate fencing standards for wildlife and wildlife passages will be determined by the U.S. Forest Service and Wyoming and South Dakota Game & Fish Department.

3. The proponent will be responsible for removing fencing as opportunities are identified through the allotment management planning process or where other opportunities for fence removal are recognized, as determined by the U.S. Forest Service in the allotment analysis. This may include fences that are not associated with the rail line easement but are impacted by the railroad.

4. The proponent will pay for the administrative and/or environmental analysis costs necessary to modify, amend or re-issue grazing permits and/or the amendment of allotment management plans as a result of changes created by the railroad. DM&E Railroad will need to arrive at allotment stability as quickly as possible.

5. The DM&E Railroad's Community Liaison (as identified in the Executive Summary of the EIS at page ES-87) will work with the U.S. Forest Service and U.S.D.I. Bureau of Land Management when federal lands are impacted.

6. Until a site or rail line footprint is completely determined, impacts to livestock movement/trailing cannot be evaluated for mitigation but will be determined and required when the extent of the impact is determined.

Summary of Grazing Impacts to Federally Administered Allotments

	South Dakota	Wyoming
Forest Service Allotments Affected	13	43
BLM Allotments Affected	6	4
Total	19	49
Total Acres of Allotment Disturbance*	373.3	1,690
Total AUMS lost in all Allotments	79.6	354.2

*For purposes of alternative comparison, an estimated 200-foot wide corridor centered on the alternative centerline was established to estimate acres affected by disturbance and to determine AUMS that could potentially be lost in each allotment.

Soils Resource:

Authority: FSM 2800 – Soil and Water

Current Statutory Authorities: The following statutory authorities (which are included but not limited to) govern the issuance and administration of special-use authorizations, and management of soil resources on National Forest System (NFS) lands:

36 CFR _____

Best management practices for soil protection will be requirement. This will include soil erosion prevention, soil compaction prevention, soil productivity, and other measures to be detailed in the Soils and Revegetation/Reclamation Plan. Gravel needed for the construction and stabilization of the rail lines will be taken from off-forest sources. Soil stabilization through revegetation practices will be required to prevent erosion, slumping, loss of topsoil, siltation and salinization of surface waters. Soil productivity will be maintained especially where construction activities may affect existing irrigation systems, canals, laterals or ditches.

DM&E Railroad shall:

1. Limit ground disturbance to only the areas necessary for project-related construction and reconstruction activities.

2. During project-related earthmoving activities, DM&E Railroad shall remove topsoil and segregate it from subsoil. DM&E Railroad shall also stockpile topsoil for later application during reclamation of the right-of-way. DM&E Railroad shall place the topsoil stockpiles in areas that would minimize the potential for

erosion, and use appropriate erosion control measures around all stockpiles to prevent erosion.

3. DM&E Railroad shall commence reclamation of disturbed areas as soon as practicable after project-related construction ends along a particular stretch of rail line. The goal of reclamation shall be the rapid and permanent re-establishment of ground cover on disturbed areas. DM&E Railroad shall attempt to reclaim disturbed areas prior to cessation of project-related construction activities for the winter to avoid disturbed soils being subject to erosion throughout the winter. If weather or season precludes re-establishment of vegetation, DM&E Railroad shall use measures such as mulching, netting or ground blankets to prevent erosion until reseeding can be completed.

4. Prior to initiating project-related construction activities, DM&E Railroad shall consult with the local offices of the U.S. Forest Service, U.S.D.I. Bureau of Land Management, National Resources Conservation Service, State Departments of Natural Resources, State Fish & Game, and State Departments of Transportation to develop an approved plan for restoring and revegetating disturbed areas within the rail line right of way for each State. DM&E Railroad shall monitor reclaimed areas until successful regeneration is acceptable to the U.S. Forest Service and U.S.D.I. Bureau of Land Management.

5. DM&E Railroad shall ensure that fill material used in project-related construction and operation activity is free of contaminants.

6. DM&E Railroad shall design and construct the new rail line so as to consider local geologic potentials for slumping and landslides and develop and implement adequate measures to minimize the potential for these to occur.

Water Resource:

Authority: FSM _____

Current Statutory Authorities: The following statutory authorities (which are included but not limited to) govern the issuance and administration of special-use authorizations, and management of soil resources on National Forest System (NFS) lands:

All water quality standards, both federal and state, shall be met. All live drainage crossings and culverts will not impede fish movement. All drainage crossings will be designed for 100-year flood events. Water sources needed for construction will be found on private lands.

Additionally, DM&E Railroad shall:

1. Obtain all Federal, state, and local permits required by the U.S. Army Corps of Engineers for alteration of wetlands, ponds, lakes, streams, or rivers as a result of this project.

2. Obtain all necessary Federal, state, and local permits required by the U.S. Army Corps of Engineers for storm water discharge resulting from this project, including National Pollutant Discharge Elimination System permits for project-related construction or reconstruction activities.

3. To minimize sedimentation into streams and waterways, DM&E Railroad shall use best management practices, such as silt screens and weed-free straw bale dikes, to minimize soil erosion, sedimentation, runoff, and surface instability during project-related construction and reconstruction activities. DM&E Railroad shall disturb the smallest area possible around any streams and tributaries, and shall consult with the U.S. Forest Service and U.S.D.I. Bureau of Land Management as well as the Natural Resource Conservation Service, South Dakota Game & Fish, Wyoming Game and Fish and State Departments of Transportation to ensure proper re-vegetation of disturbed areas as soon as possible following construction or reconstruction activities related to this project.

4. Establish staging areas for project-related construction equipment in areas that are not environmentally sensitive in order to control erosion. When project-related construction activities, such as culvert and bridge work, require work in stream beds, DM&E Railroad shall conduct these activities, to the extent possible, during low flow or periods when the stream is dry.

5. When engaging in any project-related activities near streams, DM&E Railroad shall construct any temporary stream crossings as close to a right angle with the stream as possible. DM&E Railroad shall also design temporary bridges to span across the ordinary high water elevations of waterways to the extent practicable. Following the project-related construction, DM&E Railroad shall promptly remove all temporary construction crossings and restore the area to as close to its original condition as possible.

6. Ensure that, when used in its project-related construction activities, cofferdams of check dams consist of native material, sheet pile, sandbags, or other engineered designs matching the local site conditions.

7. DM&E Railroad shall establish staging and laydown yards for project-related construction at least 50 feet from wetlands or waterways, if topography permits. If topographic conditions do not permit a 50-foot distance, these areas shall be located no less than 10 feet from the water's

edge. DM&E Railroad shall not clear any vegetation between the yard area and the waterway or wetland.

8. DM&E Railroad shall not service project-related construction equipment within 100 yards of wetlands or waterways, and shall refuel all project-related construction equipment at least 100 yards from these sensitive areas.

9. Ensure that all culverts and bridges are clear of debris to avoid potential flooding and stream flow alteration. DM&E Railroad shall design all project-related drainage crossing structures to pass a 100-year flood. DM&E Railroad shall construct the new rail line in such a way as to maintain current drainage patterns as much as possible. DM&E Railroad shall regularly inspect and maintain culverts, bridge abutments, and bridges to ensure surface water drainage is preserved.

10. DM&E Railroad shall employ best management practices to control turbidity and disturbance to bottom sediments during project-related construction of bridges.

11. Complete project-related construction through wetland, when such wetlands extend outside the rail line right-of-way, in continuous segments, in order to minimize both the time required to complete construction and the time that land adjacent to the wetlands areas is disturbed.

12. Ensure that any herbicides used in right-of-way maintenance are approved by the U.S. Environmental Protection Agency and are applied by licensed individuals who shall limit application to the extent necessary for rail operations. DM&E Railroad shall ensure that herbicides shall not be applied within 150 feet of perennial streams and wetlands to minimize the amount potentially entering waterways.

13. Ensure that any wells that could be affected by project-related construction are appropriated protected or capped to prevent well and groundwater contamination. If these wells are located on private land, DM&E Railroad must first secure permission from the landowner before undertaking any such activity.

Recreation/Noise/Aesthetic and Visual Quality Resources:

Authority: FSM 2300 - Recreation
Noise
_ Aesthetic and Visual Quality Resources

Current Statutory Authorities: The following statutory authorities (which are included but not limited to) govern the issuance and administration of special-use authorizations, and management of recreation and aesthetic resources on National Forest System (NFS) lands:

Bankhead-Jones Farm Tenant Act of July 22, 1937, 7 U.S.C. 1010-1012
Title III – Retirement of Submarginal Land, Section 31
36 CFR _____

Impact: Noise and nightlights will create impacts to the recreation and visual quality resources. Train whistles will disturb wildlife and the presence of the train will cause changes in wildlife movement that can affect hunting. Whistle-blowing will be controlled by requirements of the Surface Transportation Board. Visual resources will be impacted by the physical presence of the railroad on the landscape. Some visual mitigation will be accomplished by the use of non-reflective rails and color matching of facilities where possible. Dispersed recreationalists will be displaced in the vicinity of the railroad and will seek experiences elsewhere on the grasslands that will impact previously undisturbed areas. The landscape of the affected area will be changed in character.

RECREATION

Some of these impacts are of a type and nature where there is no definitive or set mitigation practices and the U.S. Forest Service recognizes that some of these impacts will not be mitigated. However, it is **recommended** that the DM&E Railroad be sensitive to these resource impacts and consider voluntary alternative mitigation such as development of interpretative sites or campgrounds, etc.

1. DM&E Railroad should consider the development of two interpretive sites to allow the public to view the railroad in safe and practicable places:

    a. Interpretive Pullout on School Creek

    b. Interpretive Site east of the West Yard at Township 42North, Range 68, Section 3 or on the Keeline 450 Road. The DM&E Railroad may consider a partnership with the State of Wyoming for such interpretive sites.

2. DM&E Railroad could voluntarily consider the purchase and donation of land to appropriate agencies to replace the loss of open space and mitigate the effects of the change in the landscape and recreation opportunity spectrum. The U.S. Forest Service can identify several privately-held lands that would be of interest to the Forest Service to acquire.

NOISE

1. DM&E Railroad shall consult with affected communities or individual ranchers regarding the construction schedule, including the hours during which construction takes place, to minimize, to the extent practicable, construction-related noise disturbances.

2. DM&E Railroad shall install rail lubrication systems at curves where doing so would reduce noise for residential or other noise-sensitive receptors and to minimize wildlife disturbances.

3. DM&E Railroad shall comply with Federal Railroad Administration regulations (49CFR part 210) establishing decibel limits for train operations.

4. DM&E Railroad shall consult with the U.S. Forest Service to identify measures and places along the route to eliminate the need to sound train horns consistent with Federal Railroad Administration standards.

5. Trains shall not be left idling with engines on for extended periods of time so noise is not continual.

AESTHETICS/VISUAL QUALITY RESOURCE

1. DM&E Railroad shall comply with U.S. Forest Service color coordination requirements for facilities associated with the railroad. Non-spectral facilities will be required. Any facility over 16 inches tall will be required to be olive drab, flat tan, or desert brown except where they are required by law to be a specific color. Fences are not included.

2. Nightlight pollution, particularly at the West Yard location, shall be minimized by shading light fixtures and directing lights into focused areas.

3. Minimum train lights will be used at night whenever safe and legal.

4. Facilities associated with the railroad will be lit only when occupied.

5. All telephone and powerlines will be buried if they are 33Kv or less.

Wildlife and Aquatic Resources:

Authority: FSM _____

Current Statutory Authorities: The following statutory authorities (which are included but not limited to) govern the issuance and administration of special-use authorizations, and management of wildlife and aquatic resources on National Forest System (NFS) lands:

36 CFR _____

Impact: There will be substantial impacts to wildlife, wildlife habitat and aquatic resources through the construction, operation and maintenance of the railroad. Mitigation measures will be developed cooperatively with the South Dakota and Wyoming Game & Fish Department, U.S. Fish & Wildlife Service, and U.S. Forest Service and U.S.D.I. Bureau of Land Management biologists. Threatened and Endangered species will be specifically addressed through consultation under Section 7 of the *Endangered Species Act* (See Biological Assessment, Appendix ____). Anticipated non-mitigatable habitat impacts may occur. Where this happens, off-site enhancements may be used to partially replace losses. See also *Resource Technical Reports and Impact Assessment for the Proposed Dakota, Minnesota, & Eastern Railroad,* Chapters 4.17 and 4.18, pages 4-53 through 4-125) for more information on wildlife impacts.

DM&E Railroad will comply with the terms set forth in the Biological Assessment.

The following mitigation measures will be required in addition to the requirements of Section 7 of the *Endangered Species Act,* the U.S. Forest Service requirements to protect management indicator and sensitive species, and any other requirements for mitigation as set forth by the standards and guidelines of the Thunder Basin and Buffalo Gap National Grasslands Forest Plans:

SPECIES VIABILITY

1. Sagegrouse habitat loss replacement will be mitigated at an acre-for-acre scale and lek-by-lek.

2. Mountain Plover/Prairie Dog town habitat loss replacement will be acre-for-acre.

3. Raptor nest surveys will occur prior to construction activities. All impacted raptor nests removed or destroyed by construction, operation or maintenance of the railroad will require alternative nest replacement or compensation. Details of nest replacement and/or compensation will be worked out with appropriate agency.

4. Bald Eagle winter roost sites will require whistle-free zones. Underpasses or split-grade crossings should be considered where bald eagles are known to roost.

5. Whistle-free zones or noise reduction mitigation will need to be established in Sunny Draw on the Thunder Basin for elk winter range with Wyoming Game & Fish and the U.S. Forest Service.

6. All wildlife timing stipulations as outlined by the Thunder Basin and Buffalo Gap Forest Plans will be implemented during construction.

7. Animal carcasses resulting from collision with train shall be removed from right-of-way within 12 hours. All fences will meet wildlife fencing specifications. Multiple layers of fencing will not be allowed. Fence density shall be coordinated with the U.S. Forest Service and U.S.D.I. Bureau of Land Mangement.

8. Aquatic habitat will be replaced in kind where stockponds are changed to water tanks.

9. All culverts will allow free flow of aquatic life and will be wildlife-friendly.

10. DM&E Railroad shall develop a mitigation plan designed to compensate for the loss of trees shrubs, and other woody vegetation as a result of project-related construction activities. Such plan shall focus in particular on riparian areas or other areas that are not addressed as part of wetland mitigation.

11. Should project-related construction and operation activities affect previously unidentified threatened or endangered species, DM&E Railroad shall immediately cease construction and contact the U.S. Forest Service and U.S. Fish & Wildlife Service for guidance on how to protect these species.

UTILTIES, FACILITIES, AND ROADS

Authority: FSM 7700

Current Statutory Authorities: The following statutory authorities (which are included but not limited to) govern the issuance and administration of special-use authorizations, and management of utilities, facilities and roads on National Forest System (NFS) lands:

36 CFR _____

Impact: The construction, operation and maintenance of the railroad will impact existing infrastructure, facilities and roads. The following mitigation measures will be required:

EXISTING INFRASTRUCTURE

The DM&E Railroad will be required to locate and contact all holders of permits for the following where the rail line is known to cross or be in the proximity of:

a. Transmission lines
b. Power lines
c. Telephone lines
d. Water wells/reservoirs
e. Oil Wells
f. Coalbed Methane wells
g. Earthen dams/reservoirs
h. Pipelines
i. Cables
j. Facilities
k. Any other structure above or below ground
l. Road rights-of-ways or existing easements.

DM&E Railroad will work with the permittees and the responsible agency that has issued such permits, to develop appropriate mitigation so that disturbance to permitted uses will be minimized during construction and operation of the rail line.

Pre-existing uses will continue for permittees or the DM&E Railroad will mitigate with the U.S. Forest Service or U.S.D.I. Bureau of Land Management and negotiate with permittee. For example, where the railroad enters into a permitted area for coal mines, all railroad facilities and activities within the mine permit boundary must be consistent with the Mining and Reclamation Plan for each mine.

FIRE MANAGEMENT

Authority: FSM 5100 – Fire Management

FSM 5101.1 – Fire Management on National Forest System Lands

Current Statutory Authorities: The following statutory authorities (which are included but not limited to) govern the issuance and administration of special-use authorizations, and management of fire on National Forest System lands: _____

Plowing of firebreak along both sides of the rail track will be required.

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Attachment C
Costs for Recommended Mitigation Measures - Section of Environmental Analysis

Mitigation Measure	Units	Quantity	Unit Cost	Total Cost
Grade Crossing Warning Devices[1]				
Upgrades (existing rail line in South Dakota and Minnesota[2])				
Nothing to Crossbucks	each	2	$1,800	$3,600
Crossbuck to flashing lights	each	22	$112,950	$2,484,900
Crossbucks to flashing lights/gates	each	0	$126,450	$0
Crossbucks/stop signs to flashing lights	each	13	$112,950	$1,468,350
Crossbucks/stop signs to flashing lights/gates	each	0	$126,450	$0
Flashing lights to flashing lights/gates	each	17	$22,500	$382,500
New Installations (new construction in South Dakota and Wyoming[3])				
Crossbucks	each	58	$1,800	$104,400
Crossbuck and stop signs	each	0	$2,025	$0
Flashing lights	each	6	$112,500	$675,000
Flashing lights/gates	each	2	$126,000	$252,000
Upgrades - Mankato (Alternative M-3)				
Crossbucks to flashing lights	each	1	$112,950	$112,950
Flashing lights to lights/gates	each	1	$22,500	$22,500
New Installations - Mankato (Alternative M-2)				
Crossbucks and stop signs	each	7	$2,025	$14,175
Flashing Lights	each	4	$112,500	$450,000
Flashing lights/gates	each	3	$126,000	$378,000
New Installations - Owatonna (Alternative O-4[4])				
Crossbucks and stop signs	each	1	$2,025	$2,025
Flashing lights	each	1	$112,500	$112,500
Grade Separations				
Rochester[5]	each	2	$6.5 million	$13,000,000

Attachment C Costs for Recommended Mitigation Measures - Section of Environmental Analysis				
Mitigation Measure	**Units**	**Quantity**	**Unit Cost**	**Total Cost**
Pierre[6]	each	1	$8-10 million	$8,000,000-$10,000,000
Installation of Reflectors on backs of Crossbucks	each crossing	42	$500	$21,000
Installation of Warning Signs at Pedestrian/Bike/Trail Crossings	each crossing	10	$1,000	$10,000
Liaisons[7]				
Community[8]	man-years	10	$77,800	$778,000
Agency/Tribal[9]	man-years	5	$77,800	$389,000
Support Personnel[10]	man-years	10	$28,000	$280,000
Noise Mitigation[11]				
Existing Rail Line and New Rail Line Extension				
20 Million-ton annual coal transport	per noise sensitive receptor	36	$1,000 - $4,000	$36,000 - $144,000
50 Million-ton annual coal transport	per noise sensitive receptor	81	$1,000 - $4,000	$81,000 - $324,000
100 Million-ton annual coal transport	per noise sensitive receptor	143	$1,000 - $4,000	$143,000 - $572,000
Alternative M-2				
20 Million-ton annual coal transportation	per noise sensitive receptor	13	$1,000 - $4,000	$13,000 - $52,000
50 Million-ton annual coal transportation	per noise sensitive receptor	9	$1,000 - $4,000	$9,000 - $36,000
100 Million-ton annual coal transportation	per noise sensitive receptor	9	$1,000 - $4,000	$9,000 - $36,000

Attachment C Costs for Recommended Mitigation Measures - Section of Environmental Analysis				
Mitigation Measure	**Units**	**Quantity**	**Unit Cost**	**Total Cost**
Alternative M-3				
20 Million-ton annual coal transport	per noise sensitive receptor	35	$1,000 - $4,000	$35,000 - $140,000
50 Million-ton annual coal transport	per noise sensitive receptor	16	$1,000 - $4,000	$16,000 - $64,000
100 Million-ton annual coal transport	per noise sensitive receptor	54	$1,000 - $4,000	$54,000 - $216,000
Fencing				
8-foot Chain Link[12]	per mile	18	$71,280	$128,304
Alternative M-3	per mile	0.26	$71,280	$18,532
5-strand Barbed Wire[13]				
Extension Alternative	per mile	501	$21,120	$10,581,120
Alternative M-2	per mile	29.6	$21,120	$625,152
Alternative M-3	per mile	0.82	$21,120	$17,318
Alternative O-4	per mile	3.4	$21,120	$71,808
Erosion and Sedimentation Control				
New Rail Line Construction[14]	miles	501.0	$8,712	$4,364,712
Alternative M-2	miles	29.6	$8,712	$257,875
Alternative O-4	miles	3.4	$8,712	$29,621
Existing Rail Line Reconstruction[15]	miles	232.8	$8,712	$2,028,154
Revegetation				
New Rail Line Construction[14]	acre	11,295	$1,000	$11,295,000
Alternative M-2	acre	308.6	$1,000	$308,000
Alternative O-4	acre	35.4	$1,000	$35,400
Existing Rail Line Reconstruction[15]	acre	1,721.3	$1,000	$1,721,300

Attachment C
Costs for Recommended Mitigation Measures - Section of Environmental Analysis

Mitigation Measure	Units	Quantity	Unit Cost	Total Cost
Cultural Resource Mitigation				
Archaeological Sites				
New Rail Line Construction	per site	147	$40,000	$5,800,000
Existing Rail Line Reconstruction	per site	18[16]	$40,000	$720,000
Alternative M-2	per site	6	$40,000	$240,000
Monitoring and Oversight				
Cultural Resource Monitor[17]	man-years	12	$99,500	$1,194,000
Tribal Monitor[18]	man-years	12	$99,500	$1,194,000
Third-party contractor[19]	years	5	$80,000	$400,000
TOTALS[20]				**$67,553,872 - $70,333,872**

1 Costs listed reflect the 90 percent portion DM&E has volunteered to pay.

2 Includes upgrades along existing rail line in Owatonna but does not include upgrades along existing rail line in Mankato that would occur if Alternative M-3 is built.

3 Includes grade crossing warning devices proposed for Extension Alternative construction in South Dakota and Wyoming only.

4 Grade crossing warning devices proposed for the existing rail line in Owatonna are included with upgrades for South Dakota and Minnesota.

5 Costs reflect 100 percent of the cost for installation of these grade separations. Normally this cost would be shared between the railroad and the state.

6 Costs reflect 100 percent of the cost for installation of these grade separations. Normally this cost would be shared between the railroad and the state.

7 Costs include salary, benefits, and expenses (mileage and per diem). It is anticipated liaisons will be responsible for preparation of quarterly reports, as recommended by SEA.

Attachment C
Costs for Recommended Mitigation Measures - Section of Environmental Analysis

Mitigation Measure	Units	Quantity	Unit Cost	Total Cost

[8] Anticipated to be one for Minnesota and one for South Dakota and Wyoming for the five year oversight period.

[9] Includes one person for the five year oversight period.

[10] Includes two persons providing administrative help for filing and report preparation for the five year oversight period.

[11] Includes only structures outside of communities with executed negotiated agreements.

[12] Includes total length of residential land adjacent to the existing rail line to be rehabilitated.

[13] Assumes entire length of new construction would need to be fenced on both sides to prevent livestock from wandering onto the rail line.

[14] New rail line construction includes construction of extension from DM&E's existing rail line to connect with PRB mines.

[15] Existing rail line reconstruction includes 20 percent of the rail line to be rehabilitated that DM&E estimates would require reconstruction of the existing rail bed subgrade.

[16] Includes 10 sites in South Dakota and 8 sites in Minnesota, assuming a total of 2 sites requiring mitigation would be found in the yard sites in each state.

[17] Assumes four archaeologists, two for each construction shift, labor and expenses, for three-year construction period (April 1 to November 1, or 180 working days at 6-days a week during this time period).

[18] Assumes four Tribal monitors, two for each construction shift, labor and expenses, for three-year construction period (April 1 to November 1, or 180 working days at 6-days a week during this time period).

[19] Includes costs for labor and expenses per year for the five year oversight period.

[20] Add an additional $2,304,202 to $2,397,202 for Alternative M-2; an additional $276,300 to $591,300 for Alternative M-3; an additional $251,354 for Alternative O-4.

Attachment D
Costs for Recommended Mitigation Measures - Corps of Engineers

Mitigation Measure	Units	Quantity	Unit Cost	Total Cost
Wetland Mitigation				
		Minnesota		
Jurisdictional Wetlands[1]	acres	212	$15,000 - $40,000	$6,360,000 - $16,960,000
Alternative M-2[1]	acres	18	$15,000 - $40,000	$540,000 - $1,440,000
Alternative M-3[1]	acres	22.4	$15,000 - $40,000	$672,000 - $1,792,000
Isolated Wetlands[2]	acres	0	$5,000 - $15,000	$0
Other Waters of the U.S.[2]	acres	0	$5,000	$0
		South Dakota		
Jurisdictional Wetlands[1]	acres	290	$15,000 - $40,000	$8,700,000 - $23,200,000
Isolated Wetlands[2]	acres	179	$15,000 - $40,000	$2,685,000 - $7,160,000
Other Waters of the U.S.[2]	acres	50	$5,000	$250,000
		Wyoming		
Jurisdictional Wetlands[1]	acres	17	$15,000 - $40,000	$510,000 - $1,360,000
Isolated Wetlands[2]	acres	0	$5,000 - $15,000	$0
Other Waters of the U.S.[2]	acres	20	$5,000	$100,000
Cultural Resources Mitigation				
		Historic Structures		
Existing Rail Line				
Culverts	each	231	$5,000	$1,155,000
Bridges	each	397	$5,000	$1,985,000
Missouri River Bridge	Bridge	1	$250,000	$250,000
TOTAL[3]				**$23,207,000 - $55,652,000**

1 Assumes a replacement ratio averaging 2:1.
2 Assumes a replacement ratio averaging 1:1.
3 If Alternative M-2 is built, add an additional $540,000-$1,440,000 for wetland mitigation; if Alternative M-3 is built, add an additional $672,000-$1,792,000.

Attachment E
Costs for Recommended Mitigation Measures - Forest Service[1]

Mitigation Measure	Units	Quantity	Unit Cost	Total Cost
Fencing				
5-strand Barbed Wire[2]				
Extension Alternative	per mile	79.0	$21,120	$1,668,840
Erosion and Sedimentation Control				
New Rail Line Construction	miles	79.0	$8,712	$688,246
Revegetation				
New Rail Line Construction	acre	1,915	$1,000	$1,915,000
Paleontological Resource Mitigation	per site	9[3]	$10,000 - $50,000	$90,000 - $450,000
Cultural Resource Mitigation				
Archaeological Sites				
New Rail Line Construction	per site	40	$40,000	$1,600,000
Monitoring and Oversight				
USFS - Cost Recovery Program[4]	years	5	$100,000	$500,000
TOTAL				**$6,462,086 - $6,822,086**

1 These mitigation measures and costs are based on information provided by the USFS to-date. It is likely additional measures and costs could be added as part of the USFS's Record of Decision on the project.

2 Assumes entire length of new construction (39.5 miles across USFS managed lands) would need to be fenced on both sides to prevent livestock from wandering onto the rail line.

3 Assumes 1 site per mile for the 9.4 miles of PFYC 5 lands managed by the USFS.

4 Includes costs for labor and expenses per year for five years of oversight.

Attachment F
Costs for Recommended Mitigation Measures - Bureau of Land Management

Mitigation Measure	Units	Quantity	Unit Cost	Total Cost
Fencing				
4-strand Barbed Wire[1]				
Extension Alternative	per mile	10.0	$18,480	$184,800
Erosion and Sedimentation Control				
New Rail Line Construction	miles	10.0	$8,712	$871,200
Revegetation				
New Rail Line Construction	acre	225.5	$1,000	$225,500
Cultural Resource Mitigation				
Archaeological Sites				
New Rail Line Construction	per site	2	$40,000	$80,000
Monitoring and Oversight				
BLM - Cost Recovery Program[2]	years	5	$10,000	$50,000
TOTAL				**$1,411,500**

1 Assumes entire length of new construction (5.0 miles across lands managed by BLM) would need to be fenced on both sides to prevent livestock from wandering onto the rail line.

2 Includes costs for labor and expenses per year for five years of oversight.

DM&E

DAKOTA, MINNESOTA & EASTERN RAILROAD CORPORATION

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PO BOX 178
BROOKINGS SD 57006
605 697 2400
605 697 2499 FAX

October 25, 2001

Mr. Steve Thornhill
Project Manager
Burns & McDonnell
9400 Ward Parkway
Kansas City, MO 64114-3319

Subject: US Bureau of Reclamation Mitigation Costs
DM&E Rail Transportation Project - FD 33407

Dear Mr. Thornhill:

Per request of Ken Parr and Jeff Nettleton, USBR, we have prepared an estimate of the direct and readily identifiable costs associated with the mitigation required to comply with the Memorandum of Agreement entered into with the USBR. This figure is tied to specific commitments made to the District. Our agreement also commits to broader objectives (such as doing whatever is necessary to maintain the structural integrity and operational efficiency of the District), which are not included in this figure.

As of today, I estimate the cost of this mitigation, based on the information I have been able to gather from vendors and others, is $2,250,530. This estimate is comprised of the following components:

Capital Cost of Additional Physical Construction	$ 726,150
Water Assessment (Present Value)	$ 47,670
USBR Consultation Fees	$ 50,000
Other (e.g. Bonding Fees)(Present Value)	$1,426,810

This value also does not include compensation which is part of the landowner mitigation and compensation package paid directly to affected landowners as mitigation to alter irrigation infrastructure and irrigation plan on their individual ranches. This additional compensation is required by state law and is part of our voluntary private landowner mitigation and compensation plans.

Our assumption is that the FEIS mitigation cost estimates will not attempt to project a landowner private mitigation figure, but it should be noted that it will be in the tens of millions of dollars.

If you have any additional questions please do not hesitate to call me.

Sincerely,

Ray G. Gigear
Project Engineer

RGG: (MITGCOS2)

cc: Mr. Jeff Nettleton, USBR
Mr. Kenneth Parr, USBR
Mr. Kevin Schieffer

REFERENCES

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REFERENCES

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LIST OF ACRONYMS AND ABBREVIATIONS

AAR	Association of American Railroads
ACHP	Advisory Council on Historical Preservation
AD	ano domini (year of our lord)
ADT	Average Daily Traffic
AIRFA	American Indian Religious Freedom Act
APE	Area of Potential Effect
Applicant	Dakota, Minnesota, and Eastern Railroad Corporation
AQRV	Air Quality Related Values
AREA	American Railway Engineering Association
AREMA	American Railway Engineering and Maintenance of Way Association
ARPA	Archaeological Resource Protection Act
ATV	All-Terrain Vehicle
AUM	acres per animal use month
BA	Biological Assessment
BEA	Bureau of Economic Analysis
BGNG	Buffalo Gap National Grasslands
BLM	Bureau of Land Management
BNSF	Burlington Northern Santa Fe Railway Company
Board	Surface Transportation Board
BP	before present
Btu	British Thermal Unit
BU	unknown Buteo hawk
CAAA	Clean Air Act Amendments of 1990
CALPUFF	Trademark of air modeling system developed by Earth Tech, Inc.
CAM-PLEX	Multi-event facility located in Campbell County
CBM	Coal Bed Methane
CBTC	Communication Based Train Control
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
CFR	Code of Federal Regulations
C&NW	Chicago & North Western Transportation Company
CO	carbon monoxide
Co.	County
Coast Guard	U. S. Coast Guard
COE	U. S. Army Corps of Engineers
Coop	Cooperative
Corp.	Corporation
CORRACTS	Corrective Action Reports
CP	Canadian Pacific Railway Company

CR	County Road
CSAH	County State Aid Highway
dB	decibel
dBA	Decibels (of sound) including the Audible range for humans
District	Angostura Irrigation District
DM&E	Dakota, Minnesota & Eastern Railroad Corporation
DNR	Department of Natural Resources
DOE	Department of Energy
DOT	Department of Transportation
dv	Deciview
E	Endangered
EA	Environmental Assessment
EIS	Environmental Impact Statement
EJ	Environmental Justice
EPA	Environmental Protection Agency
EMS	Emergency Medical Services
ERNS	Emergency Response Notification System
°F	degrees Fahrenheit
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
Final Scope	Final Scope of Study
FLPMA	Federal Land Policy Management Act of 1976
FRA	Federal Railroad Administration
g	acceleration of a falling object due to gravity
GE	Golden Eagle
GHO	Great Horned Owl
GPA	Game Production Area
GPS	Global Positioning System
GTM	Gross Ton Miles
Hwy	Highway
ICC	Interstate Commerce Commission
ID	Identification
I&M	I&M Rail Link
IMPROVE	Interagency Monitoring of Protected Visual Environment
ITA	Indian Trust Assets
L_{dn}	Average Day-night equivalent sound level
LF	Solid Waste Facilities/Landfill
LPG	Liquefied Petroleum Gas
LQG	Large Quantity Generators

LUST	Leaking Underground Storage Tanks
MCBS	Minnesota County Biological Survey
mgd	million gallons per day
MLA	minor, long-term, adverse
MN	Minnesota
MNHDB	Minnesota Natural Heritage Data Base
MNT	Million Net Tons
MOA	Memorandum of Agreement
MP	Milepost
MRI	Magnetic Resonance Imaging Systems
MSU	Mankato State University
mt	million tons
m.y.	million years
NA	Not Available
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation act
NCP	National Oil and Hazardous Substance Pollution Contingency Plan
NEPA	National Environmental Policy Act
NFRAP	"No Further Remedial Action Planned"
NHPA	National Historic Preservation Act
No.	Number
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NON	Non-listed (rare - may become listed)
NPL	National Priorities List
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
O_3	Ozone
OAQPS	Office of Air Quality Planning and Standards
OHV	Off Highway Vehicle
PA	Programmatic Agreement
Pb	lead
PFYC	Probable Fossil Yield Classification
PIH	Poison Inhalation Hazard
PM_{10}	particulate matter less than 10 microns in size
PRB	Powder River Basin
PRIM	Public Recreation Information Map
PSD	Prevention of Significant Deterioration
R	Range (used for legal descriptions)

RT	Red-tailed Hawk
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Information System
Reclamation	Bureau of Reclamation
RIMS	Regional Input-Output Modeling System
ROS	Recreation Opportunity Spectrum
ROW	Right-of-way
RV	Recreational Vehicle
SARA	Superfund Amendments and Reauthorization Act of 1986
SC	Special Concern
SD	South Dakota
SDGFP	South Dakota Department of Game, Fish and Parks
Sec.	Section
SEA	Surface Transportation Board's Section of Environmental Analysis
SEM	Scanning Electron Microscope
SHPO	State Historic Preservation Office or Officer
SHWS	State Hazardous Waste Sites
SIA	Special Interest Area
SIL	Scenic Integrity Levels
SNA	State Natural Areas
SO_2	sulfur dioxide
SPCCP	Spill Prevention, Control and Countermeasure Plan
spp.	Species
SQG	Small Quantity Generators
SR	State Route
STB	Surface Transportation Board
SW	Swainson's Hawk
SWF/LF	Solid Waste Facilities/Landfill
T	Township (used for legal descriptions)
T	Threatened species
TBNG	Thunder Basin National Grasslands
TCP	Traditional Cultural Property
THPO	Tribal Historic Preservation Officer
tpy	tons per year
TRB	Transportation Research Board
TSD	Treatment, Storage and Disposal Facilities
TSS	total suspended solids
TWP	Township
UP	Union Pacific Railroad Company

U.S.	United States
USC	United States Code
USDA	U. S. Department of Agriculture
USFS	U. S. Forest Service
USFWS	U. S. Fish and Wildlife Service
USGS	U. S. Geologic Survey
UST	Underground Storage Tank
VOC's	volatile organic compounds
VQO	Visual Quality Objective
WGFD	Wyoming Game and Fish Department
WMA	Wildlife Management Area
WNDDB	Wyoming Natural Diversity Database
WPA	Waterfowl Production Area
WY	Wyoming

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